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CLINICS.

Clinical Lectures.

ON SOME CATARRHAL AND MUSCULAR DISORDERS
OF THE STOMACH.

A CLINICAL LECTURE.

By MORRIS LONGSTRETH, M.D.,

ONE OF THE ATTENDING PHYSICIANS TO THE PENNSYLVANIA HOSPITAL.

GENTLEMEN: In bringing this subject before you it is not so much my purpose to advance any new views of the pathology and treatment of the much-abused organ, the stomach, as it is to give a view of the subject from new aspects. I wish to bring prominently before you certain considerations of the causes and changes in stomach troubles and their requirements for treatment, which, while well known, have been too much put aside and forgotten. While the causes of which we will speak are not the only ones, they are, I think, very much more frequently the source of trouble than is usually acknowledged. These pathological alterations also, while generally spoken of as functional in character, and which exhibit such wide variations of functional disturbance, are yet always of essentially the same type, though exhibiting so widely different grades that their relationship is sometimes with difficulty recognizable, or is even wholly denied.

Let us first arrive at the proper basis for appreciating the points here alluded to, in brief point out the anatomical structure of this organ and the particular relation which its various parts have to its functional activity, both while at work and during periods of rest. The stomach has three coats; the inner or mucous coat is an arrangement of epithelial cells resting on a basement membrane covering the submucous connective tissue. Numerous gland-tubes are everywhere found, whose office is to secrete the digestive fluid. The submucous connective tissue is a most important part of this coat, and changes in its condition, as we shall see later, bring about most harmful effects on the epithelium and the secreting glands. The next coat is composed of muscular tissue, the bands of which are divided off into compartments, as it were, by more or less broad septa of connective or fibrous tissue. This coat is, I believe, of first-rate importance in the digestive function, much more so than it usually receives credit, and to it I wish especially to call your attention. I believe that in many forms of indigestion it becomes very markedly changed. Let us remember that the bloodvessels which furnish the nutriment for the functional activity of

the inner or mucous membrane coat, traverse this layer and the submucous tissue to reach their point of distribution. The peritoneal coat forms the covering of the stomach, but its anatomy and anatomical alterations, though important for certain other stomach diseases, are not of much concern to us in dealing with our present subject.

Let me insist again that the stomach is a mucous membrane organ, specialized, however, as is the rest of the digestive tract, by two factors dependent on its anatomical structure: first, the occurrence of glands supplying the digestive fluid; and second, an abundant and moderately powerful muscular structure in its walls, which is potent in the performance of digestion.

Having, therefore, gentlemen, to deal with a mucous membrane, let us see what forms of disease we should expect, from our knowledge of its structure and functions, to occur as results of deleterious causes acting on it, either from without or within. It is important, also, to call to mind the group of causes which we know are capable of affecting its action. And not the least important of the facts to be remembered are the anatomical and functional relations which this viscus holds to neighbouring organs. In speaking of the anatomical structure of the stomach no allusion was made to its nervous and vascular supplies, or to the arrangement of its lymphatics—all very important factors in its diseased conditions.

Starting, then, with the fact of a mucous membrane, the most important change that can come to it, excluding, of course, morbid new formation and traumatism, is in the amount of mucus which it secretes, whether this is an abatement or an increase from the normal. And with this fluctuation, of course go hand in hand alterations in the amount of the peculiar digestive juices which it is the special function of the stomach to supply.

We know of no morbid influence, and I do not think one can be conceived of, which, acting on a normal stomach, does not at once primarily change the amount of mucus which it secretes. Whether such influences propagate their effects through the nervous system, come from cold, in the sense of catching cold, or through changes in correlated organs, the effects are primarily evidenced by a changed blood supply, and a variation in the amount of this nutritive fluid condition a departure from the normal secretion, both in amount and in quality.

The type of stomach disease is, therefore, of a catarrhal character, and the chief phenomenon of the morbid process, whether we speak of it as inflammation, or a catarrh, or simply a mucous condition, is an alteration of the mucous secretion.

I show you here a man æt. 28, a weaver. The history he gave was that, five months ago, his stomach began feeling badly shortly after each meal, and continuing for some hours after. This feeling of discomfort, and it amounted on some occasions to pain, kept increasing in severity, and seven weeks ago another marked symptom was added, viz., vomiting. The contents of the stomach were rejected about half an hour after eating. He could give no particular account of the appearance of this material, further than that it seemed to be "just the food." About a week ago he was compelled from weakness to stop work. Two days ago, and again yesterday, he says he vomited a good deal of blood, of a fresh character and clotted, and after this felt very weak but not faint.

The amount of food taken during all this time was progressively lessened, and had been previously, and since the commencement of the symptoms, of a coarse character—the rough, ill-prepared food of a common workman boarding house.

Upon examination the man was seen to be pale, not strikingly, if at all, emaciated, but he was very far from showing the rounded fullness of a man of health. He complained of, not headache, as he says, but of a boring feeling through the front part of the head from temple to temple, and through the forehead above the root of the nose. His lips and gums are of a pale pink; the tongue is coated with a thin whitish layer, especially at the back and along the middle portion, reaching about two-thirds to the tip; the sides of the tongue are pale, much paler than other parts of the mucous membrane of the mouth; but mark well, gentlemen, the borders of the tongue, for you will see here something which I believe is of great importance as a sign of the condition of this patient's stomach, as well as perhaps of the intestinal mucous membrane. What do we see? The markings of the teeth. These fluted depressions correspond to the body of the tooth, and the prominent portions to the interstices between the teeth. We see that the intervals between the teeth are, in his case, considerable, and here where he has lost a tooth, we find no fluted depression but a larger projection of the tongue fitting into the interval. We note, too, that his teeth are in good condition.

He complains not of a bad taste in his mouth; though he says he has had a bitter taste at times, especially on waking in the morning; it is now rather a want of taste, and a feeling of cotton-wool or spider webs filling the mouth and fauces. Latterly his food has had no particular taste, and did not excite any relish.

The tendency to vomit since the blood appeared last on yesterday has lessened, but since then he has taken almost nothing, and that of a fluid nature and in very small quantities. However, there has been some nausea, and a little mucus was ejected.

The examination of the abdomen shows no distension, in fact you see it rather flat, and the feeling of it is that of moderate firmness. Percussion gives no especial evidence. You see that this examination has given him no great pain or distress. Let us examine the region of the stomach more particularly. Carefully with the finger tips I pass over the whole upper part of the abdomen. There is no greater sense of resistance or firmness than at other parts of the abdomen, and no especially painful spot to be detected; in fact while the epigastric region is the part where he has had the feeling of discomfort in the past, it has not been confined to this part, and there has been a lesser degree of it at times over other portions. So it is with the sensation I am now giving him, he feels it most over the region from the umbilicus to the epigastrium and to the borders of the ribs, but there is also discomfort from pressure at other parts. A little nausea is excited by these manipulations, as well as by walking around.

Finally, we note that he has felt no pain at the back, and pressure does not occasion any unpleasant sensation.

The movements of the bowels have been irregular, always tending to sluggishness before the time he dates his present bad feelings; since then usually more closely confined, but this condition he tells you was interrupted by intervals when the movements were loose. So far as he can remember, the loose periods corresponded to occasions of greater pain and discomfort of the stomach. An evacuation of the bowels has occurred spontaneously—forty-eight hours since the vomiting of blood came—and he tells you it was moderately free and about as usual. There was no appearance of blood, no tarry matter in it, and subsequently none has been found. The matter passed was softly solid, varying in colour even in the same movement, but generally light gray, and oftentimes we have found scybalous

masses not of great firmness, and these as well as the softer feces were mingled with mucus.

Finally, let me call your attention to the general air of the patient—one who has never had a comfortable lot in life, and is now feeling, as he has been for several months, greatly depressed and despondent. It is well painted on his face. Doubtless from the recent hemorrhage he has been alarmed, but at present dejection is the prevalent tone. This depression comes in the high and low, the rich and the poor, and entirely apart from the accidental cause of alarm which this man has suffered. When the gastric discomfort, sometimes a burning pain, has been most marked, then has he been the most dejected.

Let us now briefly endeavour to determine the cause and the sort of trouble with which we have to deal. This history shows no antecedent acute disease, no intemperance, no excesses of any kind which so frequently lead to stomach maladies. A diet of materials largely difficult of digestion, badly prepared, taken hurriedly, and often at times when tired and exhausted with work. Add to this bad hygienic surroundings both for living and for work. Here are conditions which depressed the patient's strength below the normal, rendering the stomach unequal to performing the function of digestion. The same diet and the same conditions of life are continued, and digestion is each day an incompleting process, and consequently progressively less and less nourishment is derived from the food. Strength for digestion, as well as for work, becomes progressively less. This condition of affairs may continue in a naturally strong man for a considerable time unnoticed, as it doubtless did in this patient, for he, too, was formerly strong.

The next step in the process is, however, taken. A residuum of undigested food, however small, cannot be left in the stomach daily without producing a distinct effect sooner or later. What is this effect? First, on the mucous membrane. The presence of food in the stomach, under normal condition, excites its circulation, and this flow of blood is followed by secretion, and the digestion of the alimentary matters, and the prompt emptying of the organ. Then normally succeeds the ordinary quiet flow of blood, unattended with secretory activity, except a slight flow of mucus.

How is it with the stomach of a strong person when from any circumstance, over-eating, fatigue, nervous emotion, digestion is incomplete or delayed? After an interval, during which there may or may not be symptoms of indigestion, the digestive act recommences, the process is completed, and all is over. At most the evacuation of the bowels on the following day does not occur at the usual hour, or, with some, two movements result. Like the gardener who has not planted and cultivated his crop aright, harvest and seedtime are delayed.

Let this occur habitually in the debilitated. The repeated attempts to recommence digestion of this residuum are as ineffectual as the original effort, and for the same reason. The constant reflow of blood in these attempts leads to change of function, and the continued presence of undigested food acts as an irritant. The flow of blood never ceases, the epithelial and glandular arrangements never have intervals of rest for repair, and the chemistry of digestion is less and less well performed.

The principal product of the mucous membrane activity—over-activity—is, under these circumstances, mucus, and we have arrived at the border land of inflammation. However, gentlemen, we will not give it any name, but be content to understand what has been going on in this man's stomach. This abnormal amount of mucus, present nearly all the time, has another

very powerful influence for evil, viz., that the newly swallowed food is immediately immersed in a nearly inactive fluid, and thus surrounded the digestive juices are unable to act on it.

This is a process, therefore, you see, which is constantly promoting itself, and generally pushing forwards from bad to worse. Fortunately, this patient has largely escaped from one feature which so frequently comes in this condition, viz., the fermentation of the stomach contents. He has had no heartburn, no acid eructations, and but little bitter taste in the mouth. The formation of the various fermentation products, many of them of an acid character, develops and tends to render permanent the irritable condition of the mucous membrane, which I have described as bordering on inflammation, more intensely, and certainly more rapidly, than any other fault in digestion.

Now what has been the treatment? Let me say at once, as my remarks will already have shown, that we did not believe from the first that this man was suffering from gastric ulcer. The evidence of ulceration was never very strong, and if once we disbelieve the story of the hemorrhage, or at least discount the amount of blood, the indications of this condition almost disappear. You know how apt the laity are to exaggerate the amount of blood lost, and further than what the man himself told us, no evidence of hemorrhage appeared; no bloody or tarry stools were discovered. Whether ulceration actually occurred, or merely an escape of blood from the overdistended capillaries, no further hemorrhage came, and this, therefore, was not a symptom which had to be combated. The line of treatment which we proposed to follow was not inconsistent, at all events, with a possible ulceration, although perhaps we should have modified it had we been positive of its occurrence and of hemorrhage from that cause.

The man was put to bed, to rest, to quiet him, to quiet his circulation, to save his strength, and this was made absolute for a few days. Then he was gradually allowed to move about, and finally he was ordered exercise in the open air.

The food was entirely fluid—milk or milk and lime-water. Carbonic acid water is likewise useful. Later meat soup; beef tea is not well adapted to this condition. And still later the starchy foods and a little meat were cautiously added to his diet.

For the relief of pain and discomfort of the stomach, he was ordered dilute hydrocyanic acid. A blister, an inch square, was put on the epigastrium; not allowed to remain long; merely to redden the skin; and its position thus frequently changed. This was kept up for several days.

In the course of the week the patient was feeling much better, more cheerful; the sensation through the temples less constant, and not so discomforting; the tongue was cleaner but still coated at the back part, and looked fresher; the swelling not much changed; the bowels acted without assistance, but at long intervals; the upper part of the abdomen felt more comfortable; the vomiting, however, recurred again, but at much less frequent intervals.

The improvement was satisfactory, and was probably largely attributed to rest, the improved methods of feeding, and the better hygienic condition. A return to his former life would certainly have caused a renewal of his symptoms and discomforts. There was as yet no evidence of any essential change in the disturbed action of his mucous membrane. The tongue was still swollen, and furnished the ready index of a turgescence condition of the mucous membrane of the stomach. Is there nothing to be done to relieve or remove this condition beyond time and careful feed-

ing, and these two means are very powerful, nay, essential, if a permanently good effect is to be produced?

Yes, I think there are means to be employed—medicinal agents, which in the large majority of cases are effective in changing the action of the mucous membrane. Without their use, too, time and dieting are ineffective. In making selection of these agents, great difficulty is encountered often in finding the proper ones. This difficulty arises, I think, mostly from the lack of means of distinguishing the exact or even approximate conditions we have to deal with—and by this I mean more especially the grade or stage to which the morbid process has attained. Perhaps, however, this difficulty is not greater than with a similar condition of the respiratory mucous membrane.

One of the most efficient which I have used is calomel, and there is, I believe, nothing new in its use for this purpose. Note, however, gentlemen, the dose in which we administer it to this patient. He is to take the twelfth of a grain, in sugar, every three hours. In this manner we will continue with it until it produces an effect. This effect is often arrived at speedily, but more commonly slowly, and for permanency of result, I think the more slowly the better. It may be continued in this dose for weeks without salivation. The sensations which the patient describes after its use—and here I am speaking of the result in very numerous other cases—are, first, a relief from the feeling that has been present in the stomach; the pain is gone, though often it comes again; the burning, if there has been any, lessens and disappears; the weight or dragging is slowly removed; and a sense of content pervades the usually rather despondent person; and in describing the effect the hands are spread or rubbed over the stomach as expressive of comfort. Nausea and vomiting usually disappear from the first, even after a few doses of the medicine. The temple pain leaves.

Second. The next effect, often not arrived at for a week or ten days, or even longer, is a sensation which is diffused over the abdomen. Some patients describe it as activity of the bowels; others that "something is leaving;" to others it is gripping, as though from diarrhœa; and to others the sensation is almost nil, though they continue to improve.

What changes are observable in the patient apart from his sensations? First, he looks more cheerful; and the colour of the face, often muddy in these cases, clears. Second, the tongue clears off still more and more, or perhaps in the most successful cases entirely. The appetite and taste return or improve, and it is often difficult to restrain the desire for food. The diet, however, must for some time be kept absolutely restricted; nourishment given frequently and in small quantities, and nearly all fluid. Third, the tongue becomes less swollen, and loses the markings of the teeth along its border. The bowels are at first unaffected, but later the movements become more regular. Oftentimes there is what may be looked upon as a critical discharge, an unloading. This fecal matter varies very greatly in character; the element most generally common is mucus, and after this removal of mucus the abdominal sensations are more comfortable. The movements of the bowels previously to this discharge—which does not take place at once, but may be continued through several days—may have been of a diarrhœal character, or at least irregularly so, become at once more natural in time, quantity, and quality. More usually the bowels, during the early stage of the treatment, and indeed before, are constipated. The removal of the accumulated masses, often dry and

hard and scybalous, is a great source of relief, and after this digestion is much better performed, and the condition of the stomach improves.

In a word, I may say the result of the medicine given in these small doses, and even smaller ones often suffice, is regulative; if diarrhœa has been present, perhaps occasionally it disappears; if constipation, it is replaced by regularity.

Here is another man, still young, who looks old. Accustomed to hard work, he has now been overtaken with a stomach trouble which prevents labour. The immediate cause of his present trouble—or rather let us say what precipitated an exacerbation of his symptoms—was an apparent attack of intermittent fever. This malady you will not infrequently find does entail a catarrhal condition of the stomach. Why a mild attack of intermittent fever should do so more than other acute diseases, I can but offer this suggestion, viz., that during its continuance, the diet is generally less carefully regulated.

In this man's case I speak guardedly of his having had malaria at all, because I find a condition present in him which may have induced a mild febrile condition simulating intermittent; and then, too, quinine, we have found, did not relieve him. Stomach troubles of the sort this patient has suffered, you will find not infrequently produce pseudo-intermittent attacks.

Look at this man's mouth. There is not a tooth in the lower jaw capable of biting or grinding, and on the upper jaw it is not much better. I have not been able to get from him a satisfactory history of his stomach; he does not seem to be able to tell; but it is self-evident that digestion could not have been well performed, since the first step in its performance, with ordinary diet, was not effected. Food, not masticated, is a fruitful and frightful cause of diseased stomachs.

Whether this man suffered malaria or not is, so far as his stomach is concerned, a matter of small importance to ascertain; for, sooner or later, gradually or suddenly, he was sure, without extreme care, both as to mode of life and diet, to suffer disordered digestion and organic changes in his digestive apparatus.

With this imperfect history I shall not stop at the detail of his symptoms, but merely summarize the probable course of events and speak of the organic alteration with which we have to deal. The unmasticated food created the same inflammatory, or catarrhal, or mucous condition of the stomach as in the previous case. The partly digested pulpy food was forced into the bowel—this man, according to his account, had not suffered from weight, acidity, or vomiting previous to this attack, but had had an irregular diarrhœa.

Why this man's stomach has been able to void its contents, though undigested, promptly, and another man's has not, I am unable to say. Perhaps there was an original difference in the strength (muscular strength) of the two stomachs, and this man is evidently a more powerful man originally than the other. Certain it is, however, that some stomachs have this expulsive power more than others. I have witnessed the effects during life, and every one who is habitually examining stomachs microscopically will see differences in the muscular development in the various specimens.

The prompt expulsion of the undigested food saves the stomach from much damage, or, at least, discomfort, as it has saved this man. As he tells us, he was unconscious of any trouble with his stomach until this attack. Now, however, as you hear from him, as you may see, too, from his face, his stomach has given out. Watch me while I percuss the abdomen, and you can almost hear the evidence of the "giving out." The

area of the tympanitic stomach clearness is, you see, greatly increased. We, therefore, have to do with a dilated stomach.

There is no evidence that the pyloric opening is obstructed. There is no tumour to be felt, and I could easily reach it through his thin abdominal walls. The onward flow of his food and of the secretions of the stomach is delayed not by obstruction, narrowing of the outlet, but by deficient expulsive power. We have been washing out the stomach with the siphon, and here I show you the character of the matters that have just been removed. Besides the acid smell, note particularly the amount of mucus, now of course largely diluted with water. You at once see, from the foul, unnatural condition of the cavity of the organ, how nearly impossible it would be for even fluids, like milk, to be digested, and how wholly impossible for a solid, like meat, which this man cannot chew, to be digested,—first, from the failure of the juices, secondly, because, from the dilated condition of the organ, the digestive churning does not take place.

I think you will agree with me when I say this stomach has given out—given out in one of its most essential particulars, viz., its muscular apparatus. There is nothing I can so well compare this stomach to as a heart with valvular disease. In spite of the damaged valve the increasing strength of heart-muscle, hypertrophy, is able to overcome the obstruction to the onward flow of blood, but as soon as the cavity dilates then result symptoms of impeded circulation.

Is there anything we can do for this condition?—and remember what it is we have to deal with—first the catarrhal mucous membrane, second the defective musculature. I don't know how much benefit we can afford this man, but will give you the line of treatment we shall follow, and report the result on a future meeting.

For the mucous condition I have already told what we want to do, but those remedies are hardly in place at this stage, and it is only later that we can avail ourselves of that plan of treatment. I don't think dropping a little pepsin or mineral acid is going to avail much. They would be lost in the sea which we have just removed from this man's stomach. A better plan, perhaps, would be to administer food already partially digested. The antiseptics and non-fermentatives will not be remedial, though they may conduce to the patient's comfort.

The chief condition here is the dilatation, and we will continue to remove the load from the organ by the siphon, and give the enfeebled muscular apparatus the most favourable opportunity to contract and regain its normal tone. Is there any medicinal agent, which, like digitalis for the heart, influences directly the stomach? We do not know of any, but the medicine which, in my hands, has done the most good is *nux vomica* and its alkaloids. Tincture of *nux vomica* has long enjoyed a reputation in stomach disorders of various kinds, but how much it will effect in this case I am not able to say.

In other cases where I have had to contend against the food delaying in the stomach, this remedy has proved very serviceable. And in patients suffering from the catarrhal trouble, but in whom no dilatation of the stomach is present, a combination of calomel and extract of *nux vomica* is exceedingly useful.

Let me now show you a specimen recently removed from a patient who had long suffered from a catarrhal inflammation of nearly the whole length of the digestive tract. This stomach will serve as a diagram, bringing out in an exaggerated manner the changes of which we have been speaking. We find it filled with thick mucus, adhering to this almost destroyed

mucous membrane. The submucous connective tissue is very greatly increased. It is from the fibrous change of this portion, through which, you remember, the capillaries run, that the mucous membrane has been destroyed. Its supply of blood has been cut off. Look, too, at the muscular coat, how enormously hypertrophied. Some portions measure a quarter inch in thickness. For the present purpose of our illustration I need only state that this patient did not suffer from symptoms of retained and undigested food—there was no vomiting, no acidity, no heartburn, no eructation of gases. He had a sense of weight, and often burning at the epigastrium, but no other of the ordinary symptoms of dyspepsia. In fact all his food seemed to be hurried through the stomach unchanged, propelled onwards by the increased muscular force of the organ.

Let me sum it up. Stomach disorders, usually accounted functional, as well as others, are essentially catarrhal in their type. The presence of increased quantities of mucus is, in the early stages, one of the chief causes of the failure of digestion. This catarrhal condition, unless promptly checked, leads to organic changes, the most important of which affect first the submucous connective tissue, and secondly the muscular apparatus. The changes in the epithelial structures, of course the initial step in the catarrhal process, are much less important than the others, because complete restoration of the epithelium is more readily effected. The stomach, like the heart, exhibits its most disordered phenomena when the muscular apparatus is defective or begins to fail, and that the improvement or hypertrophy of this structure saves, at least temporarily, much discomfort to the patient.

The essential point in treatment is to change the morbidly catarrhal or mucous action of the stomach, and with the restoration of this action to the normal comes, and by this means alone, an improved quality of digestive fluid. In the presence of the mucus the digestive agents are not able to act. Finally, the addition to the dietary list of pepsin, mineral acids, antiseptics, and anti-ferments, however useful in temporarily assisting digestion, and however comfort-giving to the patient, is not curative.

CLINICAL LECTURE ON THE USE OF SPONGE PRESSURE AS A SURGICAL DRESSING.

Delivered at the Royal Infirmary, Manchester.

By JAMES HARDIE,

Assistant-surgeon to the Infirmary.

GENTLEMEN: A week ago to-day you saw me amputate the leg of a man, aged twenty-five, through the knee-joint, for gangrene, occasioned, as we believed, by embolism from cardiac disease. I dressed the stump in your presence, and I stated that I hoped to be able to-day to make some remarks to you on the special kind of dressing which I then employed. You will be interested to learn that from that time to the present the dressing has not been changed, and not only so, but that there has been no indication for a change of dressing. Not a stain of discharge has been visible; there has been no pain in the stump; the temperature has never been more than one degree above normal; and, in fact, the patient at our daily visit has invariably expressed himself as being quite well. Now, accustomed as you are to see the dressings of an operation changed almost daily, during at least the first week, this brief narrative cannot but be remarkable to

you; and as this is no solitary case of the kind, but one of many, I am desirous of drawing your attention to the lessons which may be learned from it.

It is scarcely necessary that I should justify myself when I say that the ordinary methods of dressing operation cases, whether antiseptic or otherwise, are by no means perfect. To many minds the mention of antiseptic dressings conjures up an infinite amount of trouble and pains and pitfalls. The trouble and pains we might leave out of account, as they soon become a second nature to us, though, for all that, we should be glad to be relieved of some part of them. But, then, every time the dressing is changed the patient is distressed, and there is also a risk of something going wrong. Certainly the handling of the part is not conducive to healing. Quite the reverse, for it may injure recent union. Possibly septic material may gain access to the wound, and the treatment so break down. But still, though everything goes on well, this repeated changing of dressing has to go on too; and, as I have said, every surgeon admits that this is itself an evil, and the less often he has to do it the better is he pleased.

Let us consider, then, what are the conditions of a wound, say an amputation stump, which require this frequent change of dressing. Dressings are changed because of the amount of discharge which has escaped into them. Whence this discharge? What does it consist of? You cannot inflict a wound, however small, on any part of the body without the speedy occurrence of two phenomena—first and immediately the effusion of blood, and second and later the effusion of material for the healing of the wound. Now, this effused blood and so-called inflammatory material constitute the discharge we have to deal with. The former generally early ceases, but as regards the latter, its quantity and quality also depend greatly on the conditions of the part implicated. For instance, you know that in operations on the lip—as for harelip—when the edges have been brought accurately together no great amount of discharge takes place, and union of the wounded surfaces is soon accomplished. Here we have a tissue which is dense and firm, and affording little room for the accommodation of extra-vascular discharge. In the case of a wound under the eye, again, you know that it is followed by a large amount of swelling of the adjoining parts, and this is due to the fact that here the tissue is loose and cellular; and we find, as a matter of fact, that under ordinary circumstances the healing of a wound in this region is accompanied by the filling up this loose cellular tissue by extra-vascular effusion. This takes place in the case of all wounds in this region to a greater or less extent, but the extent is much less in the case of a clean incised wound than in that of one which is contused or lacerated. If the surgeon has brought the edges of the wound accurately together, and the effusion be large in amount, a further train of phenomena will then probably ensue, which are referable to the tension of the tissues, and which you are all familiar with as acute inflammation. Bearing these cases in mind, then, and reverting to that of the amputation stump, we find that we have an extensive wound through tissues of various degrees of density, some being tough and unyielding and some loosely cellular, while the surfaces of the wound are so uneven that when brought together they afford a multitude of pockets and corners which in ordinary will be filled up by discharge of one kind or another. The wound being an extensive one, and there being considerable bruising of tissue by sawing the bone and ligaturing or twisting the vessels, it is to be expected that the discharges will be somewhat abundant in all cases; and if the surgeon, forgetful of this, neglect to make due provision for its escape, disastrous consequences will probably ensue. Hence the use of drainage-tubes of one kind or another. But a drainage-tube cannot be looked upon as an innocuous body in a wound. However beneficent its purpose, it is to all intents and purposes a foreign body, and as such must create some degree of irritation, increasing by so much the amount of discharge. A drain, then, is to be regarded

as an evil, except so far as it prevents a greater evil. And here I may remark, somewhat parenthetically, that the present fashion of using drains almost up to the very closing of a wound, the end being clipped off every few days as the latter fills up, although interesting enough, has always appeared to me most in-artistic. Is there nothing better than this mere playing with nature?

We have now to consider the behaviour of those effused products—the blood and the inflammatory discharge—in regard to the healing of the wound. The blood which remains between the flaps of course first coagulates, and a large proportion of the fluid portion early escapes from the wound. The clot itself may either break down, and also entirely escape from the interior, as it probably does when it is large, or if small and spread out it may, as it is said, become “organized”—that is to say, it affords a nidus or support for the new interlacing tissue which ultimately unites together the opposed surfaces of the wound between which it lies. Day by day it loses more of its serum, and becomes more firm, and ultimately, when it has been brought completely under the influence of the tissues, it is probably entirely absorbed. It is unnecessary for us to consider whether, as some maintain, the clot itself ever contributes actively to the formation of the new connecting material. This you have doubtless had fully discussed in your pathological studies. Enough that it is unnecessary, and that it interposes itself as an obstacle to the immediate union of the cut surfaces, and thereby throws on them the necessity of elaborating a larger amount of new growth than would be otherwise required. As regards the inflammatory material—the serum and plastic exudation—you will understand that in such parts of the opposed surfaces as are somewhat firm and closely applied to each other, barely more is here thrown out than is actually required for immediate union, while into the loose cellular interspaces, and more particularly into the nooks and crannies of the wound, which have not become occupied by blood, a continuous flow of this discharge goes on, in daily decreasing quantity, until by the shrinking and consolidation of the plastic material, aided by the contraction and compression of the surrounding tissues, this material fills up all these interspaces with firm new growth. This itself after a time becomes absorbed, but not always readily; and you will commonly find stumps which have recently healed somewhat full or rounded, and not seldom will you find the subcutaneous cellular tissue occupied by solid new material, which not only disappears slowly, but renders the stump incapable of support. What we find, then, to take place in the healing of wounds is that parts which are closely in apposition unite by immediate adhesion, while those that are separated by an interval, and lack support, unite by the effusion of material from the vessels, a large proportion of which, being fluid, is thrown off as discharge, and that the greater this interval, and the looser the tissue, or, again, the greater the amount of damage done to the part by the operation, the larger is the amount of this discharge, and the longer does it continue.

Now, I do not suppose that any of you will pretend to think that this is a typical mode of healing. What is a typical mode of healing? Do we not regard the absence of all discharge and primary adhesion of the wound surfaces, as you sometimes see in small cuts, as the *beau idéal* of the healing process? Cannot we do something more in our dressing of large wounds that their healing may imitate more closely this *beau idéal*? This is what, as intelligent beings, we have to aim at.

I have described to you the method which nature adopts to unite wounds which are held together by sutures and dressings as usually applied, and I have insisted especially on the fact that the discharges we are accustomed to see from wounds are due to the exudation of material into the cellular tissue, and into the loose vacant spaces between the surfaces of the wound. Now, I want you to understand and believe that this discharge is entirely unnecessary for the healing of

wounds, and that, were it not for the existence of these loose interspaces which I have mentioned, it would cease to trouble us. This is the point, gentlemen, which it seems to me we have forgotten in our daily surgical life, but forgetting which we have altogether missed the mark to be aimed at in our labours towards perfecting dressings. We have laboured to invent dressings which shall absorb the discharges; what we have to do is to devise dressings which shall render discharges unnecessary. Consider for one moment what it is you desire to do in arranging a stump after amputation. Do you not wish to place the entire wound surface in intimate apposition, and to maintain it so until it has adhered together? If this be so, you can imagine how little likely your ordinary dressings are to carry out your intention. You leave large spaces in the cavity of the wound, particularly at the angle where the bone is situated, and you leave loose connective tissue everywhere, both of which will quickly become occupied by effusion from the vessels. Clearly what we have to do to secure our end is to employ dressings which will exercise a sustained external pressure sufficient not only to bring the opposite surfaces immediately into contact, but also for the time being to obliterate the cellular spaces of the connective tissue, and to prevent the subsequent effusion of blood or inflammatory products. As regards the arrest of hemorrhage in this way, your every-day experience will remind you that it is easily enough accomplished, and we need not therefore pause to consider it. But as regards the prevention of inflammatory exudation by pressure, some theoretical objections will probably occur to you. Remember, however, that we are not dealing with tissues already the seat of inflammatory disturbance, but with tissues in their normal condition, and that we seek to prevent even the first step in the process. That this may be accomplished by means of pressure, in certain cases, is evidenced by the treatment of fractures and sprains by the early use of judiciously applied compresses.¹

For some years past I have been endeavouring to dress wounds with the end in view which I have enunciated, and, not to take up time with the record of failures, I find now that I have so far succeeded that I am justified in bringing my present method under your notice. I have found, that, by the use of sponge bandaged over the surface of the stump or other part, one is often able to secure perfect union of a wound without discharge and without the need of changing the dressing until the union is complete and sound. Sponge, as you know, is a material which is readily compressible into a very small bulk, and which also possesses a high degree of elasticity or resilience, so that pressure being removed it immediately resumes its former size and shape. Besides this, its highly absorptive properties, which are commonly taken advantage of in surgical practice, are well known to all of you. For these reasons sponge appeared to be a material well adapted for the purpose I had in view, first and chiefly, to exercise a continuous and elastic pressure, and, secondly, to absorb readily any discharge which might perchance escape from the wound. The sponge I have hitherto mainly employed has been the large-celled honeycomb, and the manner in which I used it is briefly as follows. Antiseptic precautions are used throughout. All bleeding points are carefully closed. Frequent sutures are inserted, so as to bring the edges accurately together. No drainage is used. The sponge, having been soaked in carbolic lotion, is squeezed tightly to expel every drop of superfluous moisture. The flaps of the stump are meanwhile carefully pressed together by the surgeon in order to force out any blood which may have collected during previous procedures. And let me urgently draw your attention to this point, since want of thought about it will frequently cause disappointment. However care-

¹ Vide Mr. Sampson Gamgee, *Fractures of the Limbs*; also Mr. R. Dacre Fox, *Brit. Med. Journ.*, vol. II., 1880.

fully you may close all bleeding points in an amputation, in nine cases out of ten you will find that after closing the wound some further hemorrhage will have taken place. Possibly this may be from the surface of the flaps; very probably it may be from the needle punctures. But be that as it may, to leave this blood in the cavity is to court failure. Diligently compress the flaps together with your fingers, and so squeeze out every drop of blood; then relax not your hold for an instant, but skilfully place the compressed sponge over the surface, and hold it, and as many more sponges as may be required to cover the entire surface, tightly with your fingers, while an assistant secures them in place with a bandage. Sometimes this is rather difficult to do, but by stitching sponges together some assistance may be gained. The bandage having been applied, you may now cover the whole with antiseptic gauze, or with tenax, with a piece of mackintosh over all; these again are secured with another bandage. In many cases it is advantageous to use as a bandage a piece of elastic webbing. This you may do if you choose.

Now, in the case of a wound of moderate size, as in the removal of small tumours or in operating for strangulated hernia, I am almost always satisfied that dressed in this way my care for it is at an end. A few weeks ago I removed a fatty tumour the size of an orange from the shoulder of a woman downstairs. The dressing was not removed until ten days afterwards, when the wound was found perfectly united and dry. So with three cases of hernia I have recently had: one a woman downstairs, and two men in the adjoining ward. In all these cases no further care was needed except the removal of the sutures when the dressing was taken off, ten days afterwards. There are also at the present time two cases of hernia in the men's ward dressed in this way. One was operated on two and the other three days ago. Both are perfectly well, and I advise those of you who are interested to look out for the removal of the dressing, probably on this day week.¹ In the case of large wounds, however, as in an amputation of a fleshy thigh, the case is very different. Here considerable skill is required in the proper application of the dressing, and doubtless in many instances only partial success will be attained. For example, there is a boy downstairs whose thigh I amputated in the lower third thirteen days ago on account of a smash of the leg. From the night of the operation he has been perfectly well. He has never once complained of pain, and, as you see from the chart, his temperature only once reached 100.2°, and has averaged 99°. This entire absence of symptoms caused me to think that on removing the dressing I should find complete union of the wound. On the tenth day, however, the nurse perceived some discharge oozing from the dressings. I therefore removed them, and found some bloody serum trickling from between two of the sutures. At one corner, also, there was some fulness perceptible. On further examination I found that a clot of blood had lodged here, the serum from which had been slowly oozing into the sponges, which, by the way, were wet and heavy. This case is an example of want of skill on my part in the application of the dressing. I do not altogether regret it, as it affords to you a good instance of the readily absorptive property of sponge.

¹ One of these men complained on the third day of pain in the region of the wound. This, it was thought, was probably due to flatus; but lest there might be any inflammatory action the dressings were changed. The wound was found perfectly sound, however, and an enema having been administered the uneasiness passed away. In both cases the dressings were removed seven days afterwards. In the case which had not previously been changed, everything was found as it should be—the wound healed, and the surface of the sponge covered with a little dried-up blood. In the other the lower end of the wound was somewhat inflamed; three-fourths of it, however, were perfectly sound.

You will now have an opportunity of seeing for yourselves the result, a week after operation, in another case of extensive wound—in the man, namely, whom I referred to at the beginning of my remarks. Although I should otherwise have left the case alone for some days, that the new tissue might be consolidated, I will take this opportunity of giving you ocular demonstration of how the case has thus far gone on. At present I cannot say with certainty what condition we shall find the stump in any more than any one of you can; but, judging from the general condition of the patient, I can form a pretty safe surmise that there can be nothing very far amiss. [Dressings removed.] You will see, gentlemen, how entirely satisfactory the progress of this case has been. There is not the slightest swelling or semblance of inflammatory action in any part. The flap is closely applied to the bone, showing everywhere the normal contour of the articular surface, the edges of the wound seem united, so that we will remove the stitches, and on the surface of the sponge lying over the wound there is only a little dark-coloured discharge, which has now nearly dried up.

I do not disguise from myself the fact that in this amputation (through the knee-joint) we have not a quantity of vascular tissue to deal with, nor the further fact that in this particular patient the blood pressure in the part is probably less than normal on account of probable plugging of the main arterial trunk. But, on the other hand, we have here a very uneven surface to cover with the flap, and under ordinary circumstances we should probably have had the depressions filled with a quantity of soft new material. And so the case may be regarded from this point of view as somewhat crucial.

I might refer to some other instances in which almost equally satisfactory results have been obtained, especially to two of amputation in the middle of the thigh which I performed elsewhere, and in which the pressure was effected through the medium of finely prepared oakum, not a very satisfactory material, as it lacks the resilience of sponge and soon becomes caked. Not having notes of the cases, however, I shall not draw on my memory for further remark.

Gentlemen, without the great fact of antiseptic surgery, to my mind the greatest achievement which has ever been accomplished in the whole history of the art, all this would be impossible.¹ Without it we pursue a course at best uncertain, and often dangerous, while with this safeguard we go on with secure step, and shall doubtless obtain more and more mastery over those abnormal occurrences which still too frequently impede our path.

Of other instances in which sponge pressure may profitably be had recourse to, I may have something to say on a future occasion.—*Lancet*, Oct. 15, 1881.

Hospital Notes.

Aneurism of the Subclavian and Axillary Artery treated by Galvano-puncture.

C. R., a seaman, aged sixty, was admitted into Mr. RANSFORD'S ward at the Royal Southern Hospital, Liverpool, October 21, 1879. Two years before he fell and injured his left shoulder. Nine weeks before admission he noticed pain for the first time in the left shoulder. About two weeks ago he noticed a swelling for the first time under the clavicle; and that his hand and fingers tingled and

¹ Yet possibly this is not the whole truth. It is known (*vide* Dr. Wm. Roberts, "On Spontaneous Generation, and the Doctrine of Contagium Vivum") that septic germs are harmless in the living tissues, and it is thus possible that the careful prevention of useless exudation into a wound may place it in a condition which will enable it to resist their further development even in the absence of antiseptic measures. But in spite of that, the possible collection of discharge through the inadequacy of our dressings will always render the use of antiseptics a desirable precaution.

felt numb; his left arm was also colder than the right, and had shooting pains down the arm. These symptoms gradually increased, and the swelling got larger and the arm became weaker. There was no history of syphilis.

On admission, he had a pulsating tumour extending from the left clavicle downwards a distance of four inches. On auscultation, a loud bruit was heard from the clavicle to below the level of the tumour. The left shoulder and arm were cedematous, and colder than the right: and there were shooting pains down the left arm, and over the shoulder-blade numbness and tingling of the fingers. Pulsation extended above the clavicle. The pulse in the left wrist was much quicker and weaker than in the right. Left arm ten inches round; right nine inches. Ordered iodide of potassium, five grains three times a day, and hypodermic injection of morphia, one-fifth of a grain at night.

Nov. 5th. The tumour seemed to be rapidly increasing in size. Thirty grains of iodide of potassium were given three times a day. In the afternoon two insulated needles connected with the two poles of a constant current battery were introduced into the tumour; ten cells were employed. The needles were kept in for rather more than thirty minutes, whilst the man was under the influence of ether. During the afternoon and evening the pain in the shoulder was about the same as before. Ice applied to the tumour. On the 6th, the pulse was 84, temperature 97°. Pain in the shoulder no less. No apparent change in the size and consistence of the tumour; pulsation in it and the radial quite as strong. No redness round the needle punctures. No headache. On the 7th he passed a good night after hypodermic injection. Solid feeling around both punctures and tumour, otherwise it appeared the same. Pulsation quite as strong. He went on in this way without much change till the 15th, when two needles were introduced, about three inches in depth; fifteen cells were used, for about forty-five minutes. Ice omitted. Pulse in the evening 112, temperature 99°. Pulse and temperature remained about the same till the 18th, on which day the pulse was 120, temperature 98.4°; 19th, pulse 110, temperature 98.4°. On the 20th the pulse was 116, temperature 98.6°. For the last few days there had been great numbness in the hand. Hand and arm swollen and powerless. Red blush over arm. The tumour was in the same condition; no signs of consolidation. Pain was very severe at the back of the shoulder-blade at night. Evening, pulse 130, temperature normal. Ordered one grain of extract of opium every four hours, as the hypodermic injections caused irritation of the skin at the point of insertion. On the 22d there was puffiness round the shoulder and axilla; arm still painful. Pulse 120, temperature 99.2°. On the 26th he had severe pain during the night, and this morning at the lower border of pectoralis major. Swelling in axilla extending down the side. Ordered fifteen grains of chloral hydrate and twenty grains of bromide of potassium at bedtime. Arm strapped to the side. Pulse 120, temperature normal.

Dec. 3. Restless during the night, shouted and got out of bed; quite awake at the time. In the morning pupils were not equal, left smaller than right, neither acted well to light, sight of left eye not so good as right. Pains in arm and shoulder not so severe as usual. Tumour still increasing. Has slight cough. On the 4th the operation was repeated with twenty cells without much hope of doing any good as only negative results had followed the former operations, but the good results obtained by Dr. John Duncan, of Edinburgh, encouraged another trial. For a day or two the tumour felt firmer, but this was only transient, and all melted away again. On the 9th the chloral was increased to twenty-five grains at bedtime, pain was very severe, and without chloral he was very restless. The tumour was gradually increasing. On the 17th the house-surgeon reported that there was no pulsation in the tumour, and he feared rupture of the sac of the aneurism. On examination pulsation was hardly to be felt, the tumour was

more diffuse; no pulse could be felt in the left radial; pulsation felt best at the inner side of the tumour, elsewhere hardly to be made out. Ptosis of left eye. Left pupil still contracted more than right. The arm was very oedematous, small gangrenous spots were visible on the back of the hand and knuckles, small slough over spine of scapula, loss of sensation three inches above the elbow. Intercoastal spaces filled on expiration, sank in on inspiration. Breath-sounds were heard all over the chest. Left side of chest was very much flattened. Temperature 101.2° , pulse 124. In the afternoon he had a sudden attack of dyspnoea with profuse sweating. This passed off in about an hour. On the 18th he was delirious during the night; in the morning the breathing was quiet; no delusion; pulse felt again in the left radial; in the evening he had severe pain, and was ordered twenty minims of sedative solution of opium at once; pulse 100. Temperature, morning 96° , evening 100° . On the 19th he passed a fair night; less pain this morning: the skin in axilla red and inflamed; not much change in the tumour since the 17th, beyond that the skin was more distended, and the blood seemed to be finding its way under the skin down the side of the chest; no change in pulse and temperature. On the 20th a bleb formed on the front of the wrist; the hand looked very dusky; the patient appeared brighter. Pulse 100, morning and evening. Temperature: morning 99.4° , evening 101° . On the 24th, the house-surgeon reported that in the morning oozing of bright arterial blood took place from the axilla; parts very sloughy; stopped with a pad of lint steeped in a solution of perchloride of iron, and on moving the patient a large stream of dark blood jutted out from the slough over the scapula; this was also stopped as above, and with tenax. The patient died the next day.

Necropsy, the day after death.—It was noticed that the chest-walls at the upper and outer part were very much pushed in, but there were no signs of any absorption or erosion of the ribs. On carefully dissecting the tumour it was found to involve the whole of the third portion of the subclavian, and the first and second parts of the axillary artery. On dividing it vertically it measured seven inches in diameter in its long axis, and four and a half antero-posteriorly. The anterior portion of the sac was lined with laminated clot, varying in depth from one to two inches; this in one or two places had broken down and formed small abscesses, apparently at the points of puncture; the sac had given way at the lower portion, and communicated with the slough in the axilla. Posteriorly the aneurism extended back to the scapula, and the tissues behind were infiltrated with dark blood, but there did not seem to be any rupture of the sac in this direction, and there was no direct communication with the slough over the scapula. The aorta and the larger vessels were atheromatous, but the other organs of the body seemed as sound as could be expected in an old man of sixty.

Remarks by Mr. RANSFORD.—It was only after many consultations with my colleagues that I decided to try galvano-puncture. The only other alternatives seemed to be to leave him to his fate, or amputation at the shoulder. Dr. John Duncan, in a paper published in the *Edinburgh Medical Journal*, April, 1866, gave fifty cases treated by galvano-puncture, of which twenty-three were cured. These results inclined me very strongly to give it a trial in this case, but I think the lesson it teaches is that in an aneurism of such magnitude galvano-puncture alone is not enough. I should in any similar case be disposed to recommend amputation about the shoulder as a preliminary step, and combine it afterwards if necessary with galvano-puncture; or, as in Mr. Heath's plan (see the *Lancet*, Jan. 31, 1880, page 168), the simple introduction of plain steel needles, which were left in some time. This case also illustrates some of the drawbacks so well stated by Dr. Duncan—namely, that, “1st. It is inherently uncertain, liable to cause relapse by the melting of the coagulum, or inflammation by its sudden deposition. 2dly. It is very liable to set up inflammation in the walls and contents of the sac and surrounding tissues.”—*Lancet*, Sept. 24, 1881.

MONTHLY ABSTRACT.

Anatomy and Physiology.

Influence of the Nerves of the Tympanic Cavity on the Vascularity and Secretion of its Mucous Membrane.

E. BERTHOLD summarizes the results of a number of experiments as follows: first, that lesions of the trigeminus, both at its trunk and its roots, provoke inflammatory symptoms in the middle ear; but there are differences in the sequels, according to the location of the lesion. The greater intensity of the inflammatory affection occurring after intracranial division may be explained by the prolonged duration of the inflammation. After semilateral division of the medulla oblongata the animals die too quickly to permit the inflammation to reach its height. Still more noteworthy than the difference in the intensity of the phenomena, is the condition of the bulla of the uninjured side. Differing in this respect from intracranial division, there was found as a result of semilateral division of the medulla oblongata almost invariably some secretion in the bulla of the sound side. Inclined though we were at first to regard this disturbance in the lining membrane of the middle ear as a sympathetic one, we still found no reason for the fact that such a sympathetic inflammation never occurred after injury to the trunk of the trigeminus, and we must leave it an open question whether perhaps a crossing of fibres takes place in the medulla, and a part of the trigeminus fibres extends to the middle ear of the other side. The acceptance of the latter assumption would make it self-evident that a lesion confined to one half of the medulla oblongata would affect both ears in the same manner, although in varying degree.

The investigations taught us, moreover, that the sympathetic must be regarded as a vaso-motor, and, according to the extent of our experiments, as an exclusively vaso-constrictor nerve of the entire ear, because a distinct narrowing of the auricular vessels was always observed after irritation of the sympathetic. On the other hand, we obtained negative results respecting the state of the vessels after irritation of the trigeminus as well as after injuries to the sympathetic, trigeminus, and glosso-pharyngeus. Prussak has already called attention to the fact that the constrictor action of the sympathetic, after its irritation, should lead us to suppose a dilatation of the vessels of the ear after paralysis of this nerve; the more so, as we know that division of the sympathetic is followed by filling of the arteries in other parts of the head. However, we fully concur with Prussak that the experiments have not borne out this supposition. Contrary to our expectation, the mucous membrane of the middle ear remained invariably pale, even when the division of the sympathetic had preceded the examination of the drum cavity by several days.

The most surprising result of our investigations, however, was the negative state of the middle-ear vessels both after irritation and after paralysis of the trigeminus, for soon after division of this nerve neither dilatation nor contraction of the middle-ear vessels could be observed. Nor could we, as stated before, observe any visible alteration in the fulness of the vessels by irritating this nerve. Although we could ascribe to the trigeminus neither vaso-constrictor nor vasodilator qualities, while division of its trunk or injury to its roots was regularly

followed by inflammatory phenomena in the middle ear, it appeared reasonable to acknowledge, in this case, the influence of the neurotomy as a merely trophic one, that is to say, to refer it to the existence of special trophic nerves. If we compare the process in the drum cavity with the so-called trophic keratitis, the phenomena in the drum cavity—protected as it is from injurious atmospheric influences—permit our drawing a more unambiguous conclusion in regard to the existence of these nerves—hitherto always considered doubtful—than the consequences of division of the trigeminus in the eye, which certainly permit of several interpretations. A traumatic otitis after division of the trigeminus could not be thought of, for reasons stated.—*Archives of Otolaryngology*, Sept. 1881.

Electrical Tetanus.

M. RICHET has found that strong and repeated electrical stimulation will cause, in rabbits and dogs, a tetanus comparable in its results to the traumatic form, and therefore of some practical pathological importance. As a rule rabbits die from asphyxia, and dogs from hyperpyrexia. The asphyxia in the rabbit is due to the arrest of respiration in consequence of the tetanus of the thoracic muscles, and death may be prevented by artificial respiration. Death occurs much more rapidly than in asphyxia from obliteration of the trachea. The latter only kills in three or four minutes, but the electrical tetanus kills by asphyxia in one minute; this rapidity of death is ascribed to the absorption of oxygen and liberation of carbonic acid during the general muscular tetanus. Prolonged applications may, however, exhaust the muscles, so that the contraction of the thorax may cease, and it is even said that respiration may recommence during the passage of the current, probably by the agency of muscles which have not been tetanized. Animals so exhausted cannot be killed by strychnine, if the application of electricity is continued. A rest of a few seconds permits the current to be again effective. In the dogs the electricity employed was not sufficiently powerful to arrest respiration, and death was due to the elevation of temperature. The ascent of the thermometer was extremely rapid, sometimes three-tenths of a degree per minute, so that after the tetanus had lasted for half an hour the lethal temperature of 111° or 112° F. was reached. This pyrexia is due entirely to the muscles, and not to the nervous system. Chloralized dogs, in which reflex action is abolished, present the same elevation of temperature, which occurs, however, a little less rapidly. The proof that the increased body-heat is the cause of death is furnished by the fact that if the animal is kept cool by artificial means, it may bear for more than two hours extremely strong currents, which cause severe tetanus, without dying for some days. The capacity for generating this great temperature under electrization does not disappear even after a prolonged application, and it is not influenced by previous fasting for two or three days. The curve of the rise presents at first a gradual ascent, which becomes more and more rapid, especially after the temperature of 101° is passed. Usually death occurs when a temperature of 112° is attained, but in some cases it reached 112.5° and 113.3° . If the temperature did not rise above 110° death did not ensue on the same or the following day; after this point, however, although death may not be immediate, it occurs within twenty-four hours. The electrization does not cause the acceleration of respiration, but this is due to the increased temperature. The thermic dyspnoea commences at 105° . and at 111° the breathing is so frequent that it is hardly possible to count it, and so feeble that scarcely any air enters the thorax. M. Richet believes that these experiments justify the hope that by treating the asphyxia and pyrexia death may be prevented in ordinary tetanus. There is one difference between the facts he observed and traumatic tetanus,

which suggests important differences between the two forms—namely, that in the latter the temperature continues to rise after death. This was not noted in their experiments, and it suggests that the cause of the pyrexia, and therefore its treatment, may not be the same in the two sets of cases. Moreover, death may occur in ordinary tetanus from exhaustion, without hyperpyrexia. Recognizing this difference, however, the facts ascertained certainly indicate the importance of keeping down the temperature in those cases in which it exhibits a tendency to rise to the extreme height often attained.—*Lancet*, Sept. 17, 1881.

Materia Medica and Therapeutics.

Action of Berberin.

Berberin has been recommended in Italy as a remedy for enlargement of the spleen consequent on malarial disease; and its mode of action has been carefully studied by Dr. A. CURCI, who has made with it a series of experimental, microscopic, and spectroscopic researches. An analysis of his memoir is given in *Lo Sperimentale* for August. He describes first its local and afterwards its general action. The local action of berberin, he says, may be said to consist in irritation and subsequent induration of the tissues. Thus the blood coagulates in the capillaries to which it is applied; the red corpuscles become small, nucleated, granular, and have pale outlines; the muscular fibres lose their distinctness; sometimes the striated fibres become larger and more marked, then lose the transverse striæ, and, the muscular substance coagulating at intervals, special enlargements are produced; the smooth fibres show distinct nuclei and become tortuous. All the tissues are hardened and strongly coloured by berberin; their vital properties are also increased, and there are active proliferation of connective tissue and increase of fibrous tissue. Berberin produces contractions of the intestine, secretion of mucus and of intestinal juices, and tonicities of the tissues. In studying the general effects of berberin, Dr. Curci first tried its effects on healthy animals. In all classes of animals, it produces prostration, muscular relaxation, adynamia, collapse, progressive lowering of temperature, at first increased and afterwards diminished frequency of the heart's action and of respiration, serous diarrhoea, albuminuria, fatty degeneration of the kidneys, and complete anorexia. Hypodermic injections produce these phenomena rapidly, and, if repeated, are followed by death. On the other hand, the administration of berberin by the mouth requires a larger dose for the production of the symptoms; diarrhoea and renal changes are always absent, and death seldom occurs. Towards the end, when sensibility is somewhat diminished, there are tonic and clonic spasm. The temperature is at first lowered, then returns to the normal, and finally falls as death approaches. The vomiting is constant and painful, preceded by contractions; and the vomited matter consists of food and mucus. The abdomen is painful; and the dysentery at last becomes colliquative. The urine is yellow, acid, and albuminous. *Post-mortem* examination only shows distaste of the heart and fatty degeneration of the cortical portion, with hyperæmia of the kidneys. Spectroscopic examination of the blood indicates diminution of its oxidizing and nutrient powers. Berberin reduces the temperature, not through the intervention of the vaso-motor nerves, but by its direct action on the tissues, through which action it also indirectly modifies the blood. With regard to the action of berberin on the spleen, Dr. Curci has found that its administration to animals is followed by an enlargement of that organ. Hence he concludes that, in cases where an enlarged spleen has become reduced under the use of berberin,

this has not been due to contraction of the capsule of the spleen, but to the destruction of the malarial miasmatic agent, which is atrophied by berberin in the same way as other histological elements. Dr. Curci concludes from his experiments that berberin may be found useful: 1, in microscopy, as a means of colouring tissues and rendering them resistant; 2, in the treatment of atonic gastro-intestinal catarrh, of chronic dysentery, of wounds and ulcers (in which it does not cause suppuration, and stimulates the activity of the tissues), and of chronic conjunctivitis. Its action on the splenic enlargement of malaria is doubtful, and requires to be studied; and it would appear to be an excellent antipyretic, and to be a remedy against the decomposition of hæmoglobin.—*London Med. Record*, Oct. 15, 1881.

Influence of Anæsthetics on the Heart, and on the Antagonism of Poisons.

Dr. RINGER has recently published two papers (*Practitioner*, June and July, 1881) which throw considerable light on the action of anæsthetics on the heart, and incidentally on the vexed question of antagonism. The observations were made with Roy's apparatus, a description of which will be found in Dr. Roy's paper "On the Influences which Modify the Work of the Heart" (*Journ. of Physiol.*, vol. i. p. 452). Considerable difficulties have hitherto been experienced in working this apparatus, arising chiefly from the inconvenience of having to obtain fresh blood for each experiment.

Dr. Ringer finds that the desiccated defibrinated bullock's blood, imported by Parke, Davis & Co., of Detroit, Michigan, answers the purpose admirably. It can be readily obtained, as it is frequently used for enemata in cases of gastric ulcer, etc. For physiological purposes it is dissolved in distilled water, and then diluted with saline, one part of blood-mixture being used to two of salt solution. In each experiment three ounces were used, the same blood being employed in the same series of observations, so that the poison and its antidote were intermixed.

Chloroform acts powerfully on the ventricle of the frog's heart. Like lactic acid, muscarin, and jaborandi, it lessens both the height and duration of the trace until, finally, the heart is arrested in diastole. In one experiment, a minim of chloroform nearly stopped the ventricle; and, when the heart had almost ceased beating, the addition of two ten-minim doses of strong solution of ammonia at once restored its action, until the contractions became almost as powerful as at first. The additions of ten drops of chloroform again stopped the heart. This shows the powerful paralyzing effect of chloroform, and demonstrates most conclusively the mutual antagonism existing between chloroform and ammonia.

It is clear that chloroform does not arrest the ventricle by stimulating the inhibitory apparatus, for the portion of the heart employed contains no inhibitory nerves. Chloroform clearly paralyzes the muscular substance of the heart, for it is well known that the muscular tissue will beat rhythmically without the presence of nervous ganglia. It is evident, therefore, that, did the chloroform paralyze only the ganglia of the ventricle, the ventricle itself would still continue to beat. Further experiments made with the lower half only of the ventricle render this certain, the ganglionless and nerveless portion being affected in exactly the same way as the whole ventricle.

Atropia does not antagonize the action of chloroform on the ventricle; nor will the previous addition of atropia prevent the action of the chloroform. Ethidene-dichloride affects the ventricle in exactly the same way as chloroform. Ether affects the heart in a far less degree than either chloroform or ethidene dichloride. Large doses accelerate the heart's action, and make each beat a

little weaker; but the amount of work done is considerably greater, the increased frequency more than compensating for the diminished force of each contraction. Ammonia and ether, like chloroform and ammonia, are mutually antagonistic as regards the whole ventricle. Bromide of ethyl arrests the ventricle, acting on the muscular substance. It is far less powerful than chloroform, but more poisonous than ether.

Iodoform and ammonia are mutually antagonistic, as shown by their action on the ventricle. A fifth of a grain of iodoform nearly stopped the heart, and then ten minims of a one per cent. solution of strong ammonia restored the contractions, which were again arrested by another dose of iodoform. This was repeated on the same heart three successive times.

The importance of these observations cannot be over-estimated, throwing as they do a new light on the whole subject of antagonisms. ROSSBACH (Pflüger's *Archiv*, Band xxi. Heft 1, p. 1, 1879) contends that drugs are never mutually antagonistic. He maintains that, when a tissue is paralyzed by one poison, it is impossible to stimulate it by another. For instance, whilst atropia, he says antagonizes pilocarpine, pilocarpine cannot antagonize atropia; atropia paralyzes the sweat-apparatus, and pilocarpine is no longer able to stimulate it into action. He admits that after small doses of atropia pilocarpine can produce sweating, and this he explains by assuming that atropia paralyzes first the nerve of the sweat-gland, and later the gland-apparatus itself. After a small dose of atropia the nerve only is paralyzed, and then the pilocarpine can still stimulate the glandular cells; but a large dose of atropia paralyzes the cells also, and then pilocarpine is powerless.

Dr. Ringer's recent experiments demonstrate the fallacy of this argument. The lower half of the ventricle consists of only one substance, muscular tissue, so that the antagonism cannot be due to an action on different structures.—*London Medical Record*, Oct. 15, 1881.

Action and Use of Citrate of Caffein as a Diuretic.

Dr. DAVID BRAKENRIDGE (*Edin. Med. Journ.*, August, 1881) makes the following remarks respecting the action of citrate of caffein as a diuretic. 1. It fails to produce any increase in the amount of the urine in cases in which the renal epithelial cells are diseased—as, *e. g.*, in the early stages of desquamative nephritis—even when vascular and saline diuretics produce a considerable increase. 2. It fails to do so in cases of cardiac dropsy in which, from physiological conditions, we may conclude that the glandular epithelial cells are already doing a maximum amount of work, or are exhausted by transference of work to them from the filtering apparatus. 3. When it acts as a diuretic it increases not only the amount of water passed, but also the amount of urea very markedly, if it have previously been abnormally lowered. 4. Its action is strikingly complementary of that of digitalis; so that, in cases in which both given alone have failed, the two administered together, according to the view suggested, have produced very striking diuretic results. 5. This increase in the amount of the urine may be independent of any increase in the general arterial blood-pressure, sufficient to account for it on any theory of general or local blood-pressure. 6. The combination of digitalis with citrate of caffein causes a striking rise in the amount and percentage of urea, which cannot be explained on any filtration hypothesis. How citrate of caffein stimulates the renal glandular epithelial cells, is still a matter of conjecture. Probably its action is similar to that of jaborandi or pilocarpin on the salivary and sweat glands. In a future paper he hopes to show that the latter substances have a diuretic action like that of caffein. On the other hand, caffein has been observed in exceptional cases to cause both sweating and salivation.

From the foregoing considerations and his whole experience of this drug, Dr. Brakenridge deduces the following practical conclusions regarding the employment of citrate of caffein as a diuretic. 1. In cases in which the renal glandular epithelium is diseased, is already doing a maximum amount of work, or is exhausted, this drug is unsuitable and should not be administered. 2. During recovery from acute desquamative nephritis, when renewal of the renal epithelium has reached a certain point, citrate of caffein, cautiously administered, has appeared to him to have had a decidedly beneficial effect; possibly in such cases it may exert a trophic as well as a secretory stimulant influence. 3. In cases in which the arterial blood-pressure is tolerably normal, citrate of caffein should be given alone, not in combination with a vascular diuretic. 4. In cases of cardiac disease, with absence of compensation, and resulting diminution in the blood-pressure and flow of blood through the kidney, general dropsy, and transference of work in the kidney, from the filtering to the secreting structures, a vascular diuretic, such as digitalis, must be employed in the first place to restore those conditions in the kidney which are essential to the action of citrate of caffein. For this purpose digitalis should be administered for a short period, one to three or four days, before commencing the citrate of caffein. 5. Citrate of caffein, employed in this manner, in conjunction with digitalis, which for obvious reasons, must not be discontinued when the caffein is commenced, is a diuretic of extraordinary power, acts with great rapidity, and is especially valuable in this respect, that it causes a great increase in the elimination of urea (and probably of other solids) as well as of water. 6. It must, however, be remembered that special and powerful stimulation of any gland, especially if it be in a state of malnutrition, may, and usually does, lead, sooner or later, to exhaustion, and must, therefore, be regarded as at best a temporary expedient and of limited duration. 7. For this reason very large doses of citrate of caffein should be avoided. He has found three grains administered once, twice, or three times daily, according to the circumstances of the cases, amply sufficient for all purposes. 8. Whenever the beneficial effects of the drug have been attained, we should at once endeavour to render them permanent by suitable diet, well selected chalybeate and other tonic remedies, or other remedial measures indicated by the special circumstances of the case. 9. Finally, in cases of very great ascites, in which the blood-pressure is, and the flow of urine through, the kidneys is interfered with by pressure on the kidney and the renal artery and vein, and in which the pressure of the urine within the capsules is increased by pressure on the ureters, neither vascular nor secretory diuretics, alone or combined, can act efficiently until the pressure of the ascitic fluid has been got rid of. 10. The citrate of caffein may be administered either in pill or in solution.—*Lond. Med. Record*, Oct. 15, 1881.

Papaya and Papain.

In one of the sessions of the Academy of Sciences in Paris, in August last (*Berliner Klinische Wochenschrift*, Aug. 1881), M. BOUCHUT made some communications regarding the sap of a plant growing in Brasilia, whose botanical name is *Carica Papaya*, which, according to investigations made by him, with the assistance of Professor Wurtz, possesses distinct digestive and peptonifacient properties. The sap, which is obtained by incisions made into the bark of the plant, and still more so the essential principle prepared from the same, which has been named papain, if for a certain time left in contact with albuminates, raw meat, fibrin, glue, milk, etc., will enter upon combinations which present all the characteristics of assimilable peptone. Croupous membranes, ascarides, tapeworm, were changed in a similar manner, even outside the body.

The statements made at that time Bouchut recently revised and enlarged, reporting experiments, which show that this vegetable pepsin exercises its digestive power even upon living tissues. One gramme of a ten per cent. solution of papain, or one gramme of a solution of the sap, in the proportion of 1.5, injected into the brain of an animal, with a Pravaz syringe, proved to have effected a complete peptonic change in the tissue twenty-four hours after the operation. Upon living muscular tissue the same material injected acted in such a manner that, twenty-four hours after, a soft, pulpy, and gelatinous substance is found in the injected locality. Further injections of the same kind were made upon the cervical glands. After three days, which were characterized by great pain and high fever, the injected glands were found to be softened and turned into abscesses, which could be lanced and emptied of their contents.

In one case of cancer of the breast, and in another of scirrhus of the inguinal glands, in the clinic of Professor Pean, in the Hospital St. Louis, softening and disintegration of the diseased parts was induced by treatment with papain. Some of the fluid contained in the softened growth was afterwards subjected to chemical analysis in the chemical laboratory of the medical faculty, by Professor Henning, and proved to be pure peptone with all its characteristics. According to one of the investigations, 47 grammes of the fluid contain 2.91 grammes of albumen, which again contained 0.565 of peptone after being dried at a temperature of 110°. The same result was reached by other investigations, and confirmed by all chemical tests. All the cases like those formerly mentioned were accompanied by great pain and high violent fever.

In conclusion, Bouchut reports an experiment on a living frog. The animal was partially stripped of its integuments, and then completely dipped in a papain solution. After twelve hours, the animal was dead; after twenty-four hours partially digested, and after two days nothing but the skeleton was left.

Vegetable pepsin, consequently, digests living tissue as well as it digests and destroys dead material outside of the body.—*Medical Herald*, Oct. 1881.

Hypodermic Injection of Citrate of Iron.

An abstract of an observation made by Dr. CIARAMELLI on the hypodermic injection of iron is given in *Lo Sperimentale* for July. A patient under his care had anæmia of an extreme degree, the affection having lasted several years. For four months he was treated with good food, exercise, pure air, decoction of cinchona, and preparations of iron, without effect. No iron could be detected in the urine; from which Dr. Ciaramelli concluded that the iron salt did not pass beyond the hepatic circulation, but was eliminated with the bile. He then injected daily from two to three grammes of a solution of one gramme of ammonio-citrate of iron in twenty grammes of distilled water. After thirty days the rose tint returned to the patient's face, all the symptoms of severe anæmia being at the same time relieved. On chemical analysis, iron was found abundantly in the urine. Dr. Ciaramelli says that this one case is not enough to serve as the foundation of general principles, but it indicates a line of therapeutic research which may be of great practical value.—*London Med. Record*, Oct. 15, 1881.

Hypodermic Injection of Water in the Treatment of Pain.

In the *Gaceta Medica* of Venezuela, Dr. PONTE relates his experiences in several instances in which he employed water hypodermically for the relief of pain. The first case was that of a boy who was suffering from an attack of intercostal neuralgia, so severe as almost to endanger the life of the patient by inter-

ference with respiration. Not having any morphine with him, the author determined to work upon the imagination of the sufferer by injecting pure cold water over the location of the pain, a procedure which, much to his astonishment, was followed by permanent relief. Impressed with this fact, Dr. Ponte resolved upon further experiments. The next case was one of toothache. In order to eliminate the imaginative element, he informed the patient of the treatment to be employed, for the execution of which permission was rather reluctantly given. An injection practised upon the side of the face nearest to the pain was followed by considerable ardor, but in less than a minute the odontalgia had subsided. Animated with these results, he employed cold water injections in a variety of different pains, always with happy issue, even in cases where morphine had been the drug previously administered. Another patient had been suffering nine years from intense gastro-intestinal neuralgia, which baffled all remedies. The pain came on after meals, and its violence was such as to cause her frequently to faint. When first seen by the writer, she was utterly prostrated. Two injections relieved the pain, and subsequent tonic treatment restored her to perfect health. Several hundred cases have been treated in the manner described, with good results. No explanation is given as to the action of the remedy.—*Med. Record*, Oct. 8, 1881.

Medicine.

On a Peculiar Form of Disease arising from Milk Contamination.

At the meeting of the British Medical Association on August 4th, Mr. R. BEVERIDGE, M.B., reported that on April 4th, an outbreak of a peculiar form of disease occurred at Aberdeen, which, from special circumstances, seemed to be connected with the supply of milk from a particular dairy, on which account the sanitary local authority intervened, and the supply of milk from that dairy was stopped. From inquiries made, it appeared that, out of 112 families supplied with milk from that dairy, 89, comprising 322 individuals, were attacked; in most cases, the majority of the members of the families being affected. The bulk of the cases of the disease were comprised within little more than a week, from the first to the 8th April, a very few having occurred prior to the first-named day, and a few appearing after the last-named, but no new families having been affected after the last date.

Assuming the milk to be the cause, it acted most energetically when used cold and in quantity, and least so when boiled or used in small quantity. The families affected were scattered indiscriminately over the town, and seemed to have nothing in common except the milk. No cases of the same nature occurred in Aberdeen outside the number using this particular milk, and none occurred elsewhere in Scotland. In several of those families who, though using this milk, escaped the disease, peculiar circumstances existed which may have accounted for the immunity they enjoyed. The special symptoms of the disease were a sharp attack of pyrexia occurring quite suddenly, lasting two or three days, and then subsiding, leaving great and often dangerous prostration behind. The attack was generally succeeded, within two or three days, by a second similar one, and in some cases by a succession of attacks, with complete intermissions between them.

The local symptoms, never specially urgent, were slight sore-throat, with a feeling of fulness or swelling there, little being seen on looking into the throat, but a swelling of the deep glands existing at the angle of the jaw. The successive attacks were marked by the involvement of successive glands, on the

same or on opposite sides. In three cases, the disease proved fatal, all these being elderly persons, and in all the immediate cause of death was the extreme prostration following the attack; death occurring in each case after the lapse of about a week, and several days after all the symptoms had subsided. In one case, a *post-mortem* examination was obtained, which revealed no special lesion connected with the disease, or causing death. The dairy-farm referred to was connected with the Old Mill Reformatory, and was situated about two miles from Aberdeen. The byre was well constructed, large, open from end to end, and contained between forty and fifty cows; at one end, at such a height as not to interfere with the cows beside it, was a large water-cistern, composed of concrete, and covered with a loose wooden lid. This cistern contained about three hundred gallons of water, was filled twice in the twenty-four hours, and from it was obtained all the water used in the byre and in the dairy. In that dairy were washed almost all the vessels used for conveying milk to the consumers. All those whose milk-vessels were not washed there escaped. When the place was examined by the sanitary inspector, the position of the cistern was at once objected to, and immediately on that, the arrangement of the water-supply was altered. Before this was done, however, a specimen of the water in the cistern was obtained, and found on analysis to be highly contaminated with organic matter, although the water before entering the cistern was extremely pure.

The following were the conclusions at which the author arrived: 1. The milk obtained from the cows was good, but the milk supplied to the consumers was dangerously contaminated; 2. The contaminated milk was the direct cause of the disease; 3. The water used in the dairy was dangerously contaminated; 4. Various circumstances seemed to show that, besides the washing of the milk-vessels with the contaminated water, there had been an intermixture of the water with the milk; 5. The symptoms seemed to indicate that the disease was produced by a living organic poison introduced into the system by the tonsils and deep lymphatics of the neck. Microscopic examination seemed to show the presence of one particular organism in the water of the cistern, in the milk supplied to consumers, and in the body of the one case where a *post-mortem* examination was obtained; but the investigations on this point are not sufficiently completed to allow of their being stated in detail. The disease differed from local inflammation in the trifling character of the local lesion, compared with the extreme severity of the constitutional symptoms, in the short duration of the attack, in its periodical recurrence at pretty regular intervals, and in the extreme prostration left behind. From diphtheria it differed in the short duration and periodical recurrence, in the absence of any trace of diphtheritic or false membrane, and in its being absolutely non-contagious.—*Brit. Med. Journ.*, Sept. 24, 1881.

Epithelial Necrosis and Diabetic Coma.

The twenty-eighth volume of the *Deutsches Archiv für Klinische Medizin* contains an article by Prof. EBSTEIN, of Göttingen, on necrosis of the epithelium of the glands in diabetes mellitus, considered with special reference to diabetic coma. He holds that there is not sufficient reason for regarding the presence of acetone in the blood as a *sine quâ non* condition of coma; although he admits its presence in a certain number of cases, and allows that there may be some connection between it and the symptoms observed.

Having already directed attention to the occurrence of necrosis of the renal epithelium in diabetes (von Ziemssen's *Pathologie und Therapie*, Band ix., 1878), he now expresses his conviction, founded on the observation of a considerable number of cases, that this degeneration plays a prominent part in the etiology of

diabetic coma. It is analogous to the necrotic processes occurring in other organs in diabetes, and is met with in two different conditions: 1, in cases where the patient dies with symptoms of diabetic coma, but no coarse anatomical cause of death can be found; 2, in cases where other serious organic changes are found along with the epithelial necrosis. These organic changes—as in acute pneumonia, interstitial hepatitis, and nephritis—may be sufficient to account for death; but still the fatal result may, in the author's opinion, be attributed in some of the cases to the necrosis of the glandular epithelium. This necrosis occurs especially in the kidney, but is also met with in other glands.

In the kidney, the necrosis may affect greater or lesser portions of the organ. In one case, where the patient died of pneumonia, the whole of the epithelium of the cortical portion of the kidney was affected. The necrosis is generally accompanied by an advanced degree of fatty degeneration of the renal epithelium.

On minute examination, the protoplasm is seen to be separated in many places from the tunica propria of the urinary tubules, and to be heaped up in balls and lumps of various sizes, in which the epithelial cells can often be distinctly seen. The epithelium presents either very indistinct nuclei, or none, not even capable of being rendered visible by colouring matter. Along with the dead epithelium, the protoplasm is transferred into simple or fatty detritus. Dr. Ebstein calls the condition of the epithelium necrotic, because it corresponds perfectly to what is met with in other circumstances, where the epithelium is indisputably dead; such as the necrosis of the renal epithelium from ischaemia following infarction or ligation of the renal arteries, or that produced by some poisons, such as the salts of chromic acid.

The necrosis of the glandular epithelium in diabetes is due, in Dr. Ebstein's opinion, much less to anaemia or ischaemia of the organ affected, than to the influence of toxic materials. That the kidneys are most affected, is due to their being the principal emunctories of such matters. In diabetes, these substances are plainly various results of the interference with tissue-change. As far as our knowledge extends, we have to take the following factors into account: 1, the abnormal oscillations of the watery contents of the organism which is the subject of diabetes mellitus; 2, the abundance of sugar in the juices and organs (hyperglycaemia); 3, various substances which appear to be present in abnormal quantities in the blood of diabetic patients, such as acetone, acetic ether, alcohol, etc., as well as oxalic acid; 4, a number of imperfectly known nitrogenous products of decomposition.

The necrotic process in the renal epithelium is of especial importance, inasmuch as it may sometimes produce a sudden arrest of the elimination of toxic substances. Epithelial necrosis thus fills an important gap in the explanation of the sudden occurrence of comatose symptoms in diabetes.

A test of the presence of at least a portion of the products of retrogressive tissue-change, especially those allied to acetic acid, is afforded by the behaviour of diabetic urine with chloride of iron (Gerhardt's test), and by the odour of acetone which the patient exhales. It sometimes happens, in cases where, under the use of a diabetic diet, there is a diminution of the polyuria and glycosuria, that an outbreak of coma occurs, the urine giving the usual reaction with chloride of iron; while in other cases, where the same reaction occurs and the same diet is used, the diabetic symptoms subside, and the patients are better for a certain time. This apparent contradiction is explained by Dr. Ebstein in the following manner. In the cases of the first category, the kidneys retain the power, with the aid of a large amount of urinary water, of completely washing away the products of decomposition, although the necrosed epithelium is no longer capable, when the excretion of water is reduced, of eliminating the waste materials from

the body. In such cases, indeed, the comatose symptoms are often seen to disappear when the patient returns to his ordinary diet and drinks abundantly of water, so as to cause a return of the polyuria and glycosuria. In cases of the second category, the renal epithelium is still capable of performing its function, even when the amount of water excreted is diminished.

Necrosis of the glandular epithelium is not confined to the kidneys. Dr. Ebstein has found an analogous change in the cells of the liver in two cases. In one case, there was no interstitial change; in the other, there was interstitial hepatitis, accompanying diabetes mellitus—a combination which he has also observed in two other cases.—*Brit. Med. Journal*, Oct. 22, 1881.

Treatment of Neuralgia and Rheumatism by Electricity and Iodoform.

Dr. Mosso describes, in the *Gaz. Med. di Torino*, 1881, eighteen cases of rheumatism and neuralgia treated by electricity and iodoform. He says that useful effects are often produced by a simple Gaiffe's apparatus, with a weak induced current, in neuralgia and rheumatism. Sometimes, however, the malady does not yield to electricity; and in such cases he has given iodoform internally with success, sometimes alone, sometimes in combination with quinine, salicylate of soda, or bicarbonate of soda. This treatment gave the best result in neuralgia, but was useless in two cases of traumatic sciatica. The daily quantity was from 5 to 6 decigrammes (about $7\frac{1}{2}$ to 9 grains), besides what was applied externally; and no inconvenience was produced. In one case in which pure iodoform was applied externally, recovery took place, and iodine was detected in the urine. Dr. Mosso says that iodoform may be given without fear in doses of from 10 to 15 centigrammes several times a day, external friction and other means of promoting the action of the remedy being employed at the same time.—*London Med. Record*, Oct. 15, 1881.

Cerebral Symptoms in Dyspepsia.

M. LEVEN has reported in *Le Progrès Médical*, May 28, 1881, one hundred cases which tend to show the existence of cerebral phenomenon whose presence has been heretofore overlooked in dyspepsia. Thus he has seen patients suddenly struck down in the street with true apoplectic attacks which last from ten minutes to a quarter of an hour. Such cases were believed to be epileptic, but M. Leven suggests that they were in reality simply dyspeptic, since the cerebral symptoms entirely disappeared when the digestive troubles had been cured. In dyspepsia the intelligence is unaffected, and there is never any mental disorder. Certain cerebral faculties may be altered, but the *ego* remains intact. This affection of the higher faculties, this weakening of the will, of action, of memory, and of the power of speech, may be readily observed. In some cases the patients are unable to determine upon an act, and they have to make a decided effort to perform what is generally an almost instinctive movement, as for instance to pick up anything that they have just dropped. In such cases the memory is impaired and speech is difficult, more especially after meals. The patients are melancholy, and suffer from cutaneous hyperæsthesia, a point which distinguishes them from the hysterical.—*Practitioner*, Oct. 1881.

A Case of Destruction of the Corpus Striatum without Symptoms.

In the *Deutsche Zeitschrift für Klinische Medizin*, xxvii. p. 520, HONEGGER narrates the case of a patient aged 56, who had formerly suffered with rheumatism, was admitted to treatment for various symptoms, such as pain in the abdo-

men, headache, etc. The examination showed chronic nephritis, endarteritis, and hypertrophy of the heart to be present. The patient was not paralyzed in any part of his body, and denied ever having been so. He died of marasmus, and upon post-mortem the following condition was found: In the left corpus striatum a focus of softening extended in to some depth, a similar focus in the thalamus of the size of a lentil, and one of the same size in the upper part of the lenticular body. The whole section of the nucleus candatus, the upper part of the lenticular body and the part of the internal capsule between them were completely destroyed. The centrum ovale was affected for a distance of two cm. around the focus.—*Pacific Medical and Surgical Journal*, Oct., 1881.

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Left-sided Convulsions followed by Paralysis.

M. D. MACLEOD, M.B. ED., reports the following case in which unilateral convulsions were followed by paralysis and in which an area of local cerebral softening was found after death.

A. A—, aged seventy-three, female, widow, admitted Aug. 9th, 1879, was reported to have had some "fits" about eighteen months before, but no accurate history could be obtained of her case. On admission she was found to be far advanced in senile dementia. She had no idea of her surroundings, nor could she express herself intelligibly. She was very feeble, and could hardly stand, but was able to move her limbs. She could see fairly well, but was deaf. Her lungs, heart, and kidneys were healthy enough. She had a good appetite. Owing to her feeble state she was mostly confined to bed, where she lay quietly. She continued without much change for a year or so, when it was noticed that she did not see so well. Her blindness increased, and, as far as could be judged, was total for months before she died. She had an attack of convulsions at the end of 1880, but it did not last many minutes. On the 19th of April, 1881, she was seized with clonic convulsions confined to her left side. The left side of her face was throughout convulsed; the left eye was spasmodically drawn outwards; her left arm, leg, and the muscles of the left side generally were in a constant state of spasm; the chin was drawn upwards and to the right. The convulsions commenced about 9 P. M., ceased after a short time, commenced again, and continued, but gradually getting weaker, till next morning. On the 20th the convulsions had entirely ceased, and it was seen that she was completely paralyzed along the left side. Her mouth was drawn to the right, her left cheek flapping, and her arm and leg flaccid and powerless. She was unconscious, and continued in a state of coma till 5 P. M. on the 21st, when she died.

The following were the morbid appearances seen in the brain. It is of interest to note, in connection with the blindness in this case, the complete destruction of the angular gyrus of the right hemisphere. The general diseased state of the vessels of the brain, the great atrophy, and the extent of the softening, render a localization of the lesion causing the convulsion difficult; but it is noteworthy that the disease was of the motor area and the tracts connected with it.

Post-mortem appearances.—Head: The scalp was normal; the calvaria was thick, soft, spongy. The dura mater was thickened and tough; the sinuses were full of black clot. On cutting into the dura mater 8 oz. to 10 oz. of cerebro-spinal fluid escaped. The arachnoid was opaque; the vessels of the membranes generally were full of blood. The pia mater was thick and oedematous; it was easily separable from the convolutions except at a spot over the right postero-parietal region, where there was some gelatinous effusion. The arteries of the brain were very atheromatous, markedly so the right middle cerebral; the basilar artery was comparatively healthy. The brain was small (weight 32½ oz.; right

hemisphere $14\frac{1}{2}$ oz., left hemisphere 14 oz., cerebellum and pons 4 oz.). The convolutions were atrophied generally; they were small and much divided by shallow sulci. The cranial nerves were atrophied; the optic nerves, chiasma, and tracts were small and flattened; there was apparently no local atrophy or disease of the right hemisphere. The convolutions of the left hemisphere were small throughout. There was an area of old yellow softening in the left postero-parietal region; this area included the angular gyrus, the posterior portion of the supramarginal gyrus, a small part of the superior parietal lobule just anterior to the parieto-occipital fissure, the upper margin of the first temporal and a very limited portion of the second occipital convolutions. The whole gray matter of this softened area was destroyed, as was the white matter underneath. A band of softening extended inwards and forwards to the posterior part of the thalamus opticus, into which the left optic tract entered, and another line of yellow softening anterior to the other, and separated from it by apparently healthy white substance, was easily traceable to the corpus striatum, the posterior part of which was softened. There was no apparent softening or degeneration in the crura, the medulla, or pons. The convolutional softening corresponded to the area supplied by the branch of the middle cerebral artery running in the horizontal ramus of the Sylvian fissure. This vessel was markedly atheromatous and diminished in calibre. The branch ascending was free of atheroma; the lateral ventricles were dilated; there were gliomatous bodies on the choroid plexus; the cerebellum and pons were soft; the other organs of the body presented no marked abnormality.—*Lancet*, Sept. 17, 1881.

Spinal Lesions from Compressed Air.

The paraplegia which has occasionally been observed in professional divers has been ascribed by M. PAUL BERT to the effect of the compressed air, and he has reproduced it experimentally by subjecting animals to air compressed to seven or eight atmospheres in special apparatus. MM. Blanchard and Regnard have endeavoured to complete these researches by studying the changes in the spinal cord produced by this influence. Some animals (dogs) died soon after the restoration to normal conditions; others lived several days. One of these was attacked with paraplegia, but recovered perfectly. It was ultimately killed, and the spinal cord was found to present numerous foci of hemorrhage and evidence of acute parenchymatous myelitis. There was no sclerosis. The minute hemorrhages existed not only in the gray substance, but were met with in the entire length of the cord; sometimes in the anterior, sometimes in the posterior cornua. The myelitis had the usual characters; hypertrophy and varicosity of the axis-cylinders, and granular masses scattered through the tissue. The change occupied various situations in the white substance, and was in some places of considerable extent. It was least in the lumbar enlargement and was most intense in the dorsal region, where it was so extensive that the recovery of function is difficult to understand.—*Lancet*, Sept. 17, 1881.

Nerve-Stretching in Diseases of the Spinal Cord.

Dr. CARL LANGENBUCH has published, in Nos. 24, 25, 26, and 27 of the *Berl. Klin. Woch.*, his further experiences of the results of nerve-stretching in tabes and other diseases of the spinal cord. He shows that, on account of the long course of tabes, the later stages alone are seen in the post-mortem room, and he also points out that in this disease there are lesions of nerves, as well as of the cord. Sometimes congestion of the nerves, sometimes anæmia, is found. In answer to the question, "Why are the posterior root-zones affected?" he an-

swers that these are the media of communication between centre and periphery, and may be regarded as practically peripheral substance. The columns of Goll connect gray centres with one another, and are only secondarily affected. He regards cold as the great cause of *tabes dorsalis*.

With regard to the treatment of this and similar diseases, the author observes that even the most useful means—baths, electricity, cautery, etc.—produce only small benefit occasionally; much improvement rarely; recovery never. Such methods act on the end-organs, and thence affect the centres. Nerve-stretching acts directly on the centre; and, although brought forward with caution, it has been abundantly successful. If necrosis of nervous elements have set in, the cure is only partial; but if the disease be taken early, the recovery is complete. Of twenty-eight patients, sixteen suffered from *tabes*, two from multiple sclerosis, one from lateral sclerosis of both sides, one from lateral sclerosis of one side, one from muscular atrophy, two from tetanus, three from spinal myelomeningitis, one from pemphigus, and one from pruritus. Six of the tabetic patients were dismissed as cured; the others were recent, and were still in bed when the paper was published. The multiple sclerosis was much relieved in both cases. The one-sided lateral sclerosis was entirely cured, and the bilateral case was too recent to be set down in the list of recoveries. The case of muscular atrophy was considerably improved, but was only recently operated on. The tremors were much diminished, but sufficient time had not elapsed for certainty to be attained. Two cases of myelomeningitis had only just been treated, and the effect was uncertain; in the third there was little, if any, improvement. Both cases of tetanus died; and, lastly, the case of pemphigus and that of pruritus were both entirely cured. During the operation both pulse and respiration undergo considerable but varying changes, and when much alteration was observed, further stretching was not allowed. After the influence of the anæsthetic had passed off the patients had no uneasiness, and expressed themselves, in certain cases, as grateful for the removal of pain. Sensibility was never diminished, but sometimes increased, and there was total removal of the feeling of cold in the extremities. In some cases the one leg felt as if longer than the other, and there was a sensation of being in a strange position. Motility was rapidly restored, and the ataxy removed. Constipation ceased, and involuntary micturition was cured in some cases; and in one case impotence was brought to an end. The sight was improved in cases where it had been affected. The after-results of longer periods have necessarily not been observed as yet; but we have sufficient evidence to lead us to hope for much.

Dr. Langenbuch shows that nerve-stretching has an influence upon the whole nervous system, and in conclusion points out that, in disease of the spinal cord, nerve-stretching is a method of treatment from which, under antiseptic management, nothing is to be feared, and everything may be gained.—*London Med. Record*, Oct. 15, 1881.

Ergot in the Paralysis of Lead Poisoning.

According to Dr. J. A. STITES, in the State of Nevada it may be safely estimated that fifty per cent. of the physician's practice consists of cases of lead-poisoning, the symptoms being in most instances well marked, while in the remainder they are more or less masked. Of the remaining fifty per cent. of practice, the bulk is furnished by accidents and syphilis. The occupation of the male population is mining in silver ore, which is largely associated with lead. Wrist drop is a very frequent symptom, and paralysis of other forms, even hemiplegia and paraplegia, is not an infrequent complication. In the milder mani-

festations of these symptoms, a cathartic of sulphate of magnesia, followed by iodide of potassium, usually removes them in a few days, enabling the sufferer to resume his work. The habits of the miner render him peculiarly susceptible to attack, and Dr. Stites has found that when his patients abstain from alcoholic stimulants, keep their bowels open, and preserve their appetite by proper living, they are much less apt to suffer from lead-poisoning.

In hemiplegia and paraplegia due to lead-poisoning, Dr. Stites has found ergot in combination with iodide of potassium and nux vomica to expedite recovery. He has tested its efficacy by comparison in the hospital with which he is connected, adopting three varieties of treatment: (1) iodide of potassium alone; (2) electricity with tonics and nux vomica; (3) iodide of potassium and ergot. The latter plan has been attended with the utmost satisfactory results. The following is his standard prescription: *R. Potassii iodidi, ʒij; ext. ergotæ fluidi, ʒij; ext. nucis vomicæ fluidi, ʒij; tr. cardamomi co., ʒij; syrapi, q. s. ad ʒiv. Misce. Sig.*—A tablespoonful night and morning.

Usually in a month the power has been restored to the paralyzed parts. Under other forms of treatment recovery does not usually come under three months. The efficacy of ergot is attributed to the well-known physiological action of ergot on the non-striated muscular fibre. The dangers which were formerly supposed to be attendant on the prolonged employment of ergot, such as gangrene, etc., are certainly not to be apprehended, according to the author, in the therapeutic employment of the drug.—*Therapeutic Gazette*, Oct. 1881.

Treatment of Empyema.

Dr. W. WAGNER of Königshütte, in commenting on a case of empyema successfully treated by operation under antiseptic conditions (*Sammlung Klinische Vorträge*, No. 197), states that the treatment of this affection has now reached a fresh stage; and that, since the introduction of Listerism, an operation, instead of being a mere palliative measure, is to be regarded as justifiable under all circumstances, and, in cases of simple empyema at least, as free from risk.

The surest way, Wagner asserts, of distinguishing an empyema from a simple pleuritic exudation, is to make an exploratory puncture. This may be done with a disinfected hypodermic syringe and trocar, or, better still, with a larger syringe, such as that used by veterinary surgeons, which holds about five grammes of fluid, and is furnished with a strong and large needle. The exploratory puncture, however, does not always guard against errors in diagnosis. In the first place, a case may be met with in which there are two separate and distinct exudations, one a serous, the other a purulent exudation. Then, again, it may happen, especially in cases of exudation originally serous or sero-purulent, that have become purulent, that the exploratory puncture will give vent to serous fluid in the upper part of the collection and to purulent fluid below. In a patient lying constantly on his back, this precipitation will take place not to the inferior but to the posterior part of the thoracic cavity, so that serum will be present in front and pus behind. Dr. Wagner, though acknowledging that cases of this kind are rare, lays it down as a rule that, in every case of pleural exudation in which the general symptoms indicate empyema, several exploratory punctures should be made at different parts of the corresponding thoracic wall, should it happen that at the first or earlier punctures serum and not purulent fluid is withdrawn.

At the present day, no medical man believes in the possibility of the absorption of a purulent pleural exudation. The so-called "natural cure," in which the pus is discharged through the air-passages, is of rare occurrence, and, when

it does occur, is likely to have bad results, and to give rise to phthisis through the contact of the discharge with the lung-tissue, or through its aspiration into the fine bronchial divisions. Spontaneous discharge of an empyema through the thoracic wall cannot be regarded as a favourable termination, as it is often followed by an obstinate fistula.

In a case of well-marked empyema there is, in Wagner's opinion, an almost unconditional indication to operate at as early a date as possible. Unless the affected pleura covering the lung be soft and yielding, and the lung itself be capable of complete re-expansion, the chances of a speedy and good cure will not be favourable. An acute pneumonic infiltration still persisting, whether to a high or low degree, should not prevent early recourse to operative treatment, for with removal of the empyema the pressure on the lung is removed. This organ is thus set free, and as its normal conditions of circulation become re-established, the absorption of the inflammatory exudation is favoured. If the inner wall of the abscess be stiff and unyielding in consequence of thickening of the pulmonary pleura, then cure cannot be effected speedily, and cannot possibly occur at all, unless the resistance of the thoracic wall or that of the tough pulmonary pleura can be overcome. Wagner sums up his remarks on this subject by stating that, when we operate in the early stage of empyema, we meet with the most favorable conditions for the re-expansion of the lung and for the approximation of the walls of the abscess. The older such an abscess, the thicker will be its walls, and the greater difficulty will there be in the obliteration of its cavity. In the application of the above rule, it is, of course, to be understood that the operation be performed under antiseptic conditions. Dr. Wagner is not in favour of treating empyema by simple puncture and aspiration. Such treatment may occasionally prove successful, especially with young children, in which class of patients there is likely to be a rapid re-expansion of the lung after removal of the purulent fluid; but it is attended with this disadvantage, that, as it is almost always impossible thus to remove all the pus, there is likely to remain a small quantity of this secretion, the presence of which invariably causes a relapse of the empyema. The rule is laid down by Wagner that it is not justifiable to try puncture more than once in a case of empyema, and that, if this first attempt do not succeed, the surgeon ought, without delay, to have recourse to incision. The longer an empyema is allowed to run its course, the less favourable become the chances of a cutting operation, and with repetition of simple puncture valuable time is lost.

Though an incision through the thoracic wall low down in the back of the chest may be most favourable for a full discharge during the operation, and in the course of the after treatment, yet, Dr. Wagner holds, this situation can hardly be regarded as being under all circumstances the best in the operation for empyema. The inferior and posterior part of the affected pleural cavity is often obliterated in consequence of pleurisy, and the space may be so contracted through approximation of the elevated diaphragm and the inner wall of the thorax, and also through re-expansion of the lung, that free discharge of pus from the pleural sac is prevented. Dr. Wagner prefers an incision in the fifth or sixth intercostal space, near to the edge of the latissimus dorsi muscle; and in order to promote a free discharge during the after-treatment, he keeps his patient lying on the side, with the pelvis and lower part of the trunk elevated on a firm pillow.

In the cutting operation for empyema, Dr. Wagner recommends the administration of an anæsthetic. With anæsthesia, the surgeon is less likely to be disturbed through restlessness of the patient, and he may, if it be found necessary, proceed without delay to resect a portion of rib. Care, however, must be taken that the movements of the chest on the sound side are not impeded during the operation.

Sudden death, which has occurred in some cases of empyema during operation, cannot, it is stated, be attributed to the anæsthetic. It has been due rather to some disturbance of circulation (thrombosis, cerebral anæmia, embolism of the pulmonary capillaries, pulmonary congestion, or œdema). These instances of sudden death have occurred as frequently during simple thoracentesis without anæsthesia, as in cutting operations for empyema.

The details of the cutting operation are very simple. The surgeon either makes an incision through the skin about two inches in length along the upper margin of a rib, and then slowly divides the muscles until he reaches the pleura, which he opens with a small bistoury; or, following König's practice, he resects subperiosteally a portion of rib about one inch in length, and then opens the thoracic cavity by incising the posterior layer of periosteum and the pleura. This latter operation should always be performed when the intercostal space is not of sufficient width to admit of the passage of a wide drainage-tube. It is not likely to be attended with any bad result, and in young subjects the resected portion of rib is almost always wholly replaced.

During the flow of pus, which should not be allowed to take place too rapidly, the surgeon should carefully examine the fluid, and also introduce his finger through the opening into the pleural cavity, in order to ascertain the condition of the surrounding wall. He thus endeavours to make out indications for future treatment. If the purulent discharge be free from smell, and do not contain flakes, no injection need be made into the sac; but if, on the other hand, it be fetid, and be mixed with large and numerous fibrinous masses, then it is necessary to wash out the cavity. Dr. Wagner now uses in such cases a 7 per cent. solution of boracic acid. If the walls of the purulent sac be felt to be thick and rough, and if they be evidently covered by adherent masses of fibrine, then it is necessary to wash out the cavity thoroughly and repeatedly with strong antiseptic solutions, which, in order that chilling may be avoided, should be warmed before they are injected. It is advisable, in dealing with such a condition, to make a second opening into the thoracic cavity.

When the pleural cavity has been opened, relieved of its purulent fluid, and washed out, or, as should always be done in simple cases of pyæmia and with children, has been simply emptied, a piece of drainage-tube of wide calibre, the length of which need not be more than two inches, should be inserted into the wound. Across this tube, near its outer extremity, a needle is thrust. This prevents the tube from falling into the thoracic cavity, whilst two sutures applied to the margins of the external wound and tied around the needle prevent it from being forced outwards. During the operation and immediate dressing, and also during subsequent dressing, Dr. Wagner guards the exposed parts by the carbolic acid spray. The first dressing, by which the whole of the affected side of the chest is covered, and which reaches from the axilla to the pelvis, consists of thick layers of Lister's gauze and of salicylated wadding. The first dressing ought not, it is stated, to be allowed to remain for a longer period than twenty-four hours, even though no secretion has made its way to the surface. The surgeon should then make sure that the drainage-tube remains in position, and that it is patent, and not obstructed by a clot. Retention of pus thus caused is a serious matter in a case of simple empyema, since a continuous and full discharge of the secretion is a necessary condition of a speedy cure. For the same reason, it is held advisable to change the second dressing after a short interval. The thermometer is a sure indicator of retention of pus, but not until this has been established for some hours. During each change of dressing, which, as has been stated, is always done in Dr. Wagner's practice under the spray, the drainage-tube should be removed and thoroughly cleansed, and, if necessary, be shortened before it is

replaced. If, during the after-treatment of a primarily simple case of empyema, the pus become fetid and mixed with flakes and shreds of fibrine, the pleural cavity at each change of dressing must be washed out with an antiseptic solution. Dr. Wagner recommends a solution (three to eight per cent.) of boracic acid, or a five per cent. solution of chloride of zinc.

Careful observation of temperature is of the highest importance during the after-treatment of empyema. In a case of simple empyema, the temperature, after an antiseptically performed operation, should from the first be almost normal, unless there be any disease of the lungs or other viscera. An evening temperature of over 101 deg. should always arouse a suspicion that the pus does not flow freely, or that it is no longer in a good condition. A persistence of fever may be caused also by the presence within the pleural sac of fibrinous masses, and, in such case, steps should at once be taken to remove these. In many cases of empyema, these masses exist in abundance, and set up fever by acting as foreign bodies and by becoming decomposed. When the purulent fluid discharged at the time of operation is found to contain fibrinous flakes, and the walls of the cavity can be felt to be roughened and covered by similar deposits, the case can only be treated as one of simple empyema, and an attempt must be made to remove all the material. A portion of rib should be resected, in order that the opening in the thoracic wall may be of sufficient size, and the surgeon should then attempt to remove as much as he is able of these fibrinous masses, by introducing his finger and by washing out the cavity. The injected fluid should be an antiseptic one sufficiently concentrated to disinfect, as far as may be possible, any remaining deposits. The use of such injections should be continued until the purulent discharge becomes free from smell, and is no longer mixed with portions of fibrinous material. The further treatment of complicated empyema, so long as the pus is in good condition, is the same as that of simple empyema.

Dr. Wagner warns against replacing too soon during the after-treatment a thick and short drainage-tube by one of smaller calibre. A weak and narrow tube will more readily become obstructed, and offers less resistance to the tendency of the ribs immediately above and below the wound to come together and obstruct the flow of pus. When there has been no secretion for about eight days, and the temperature has remained during this period quite normal, the drainage-tube may be removed. The wound generally heals then very rapidly. If in cases of this kind there occur a reaccumulation of pus, the abscess is usually a small one, and its sac is cut off from the pleural cavity. If the discharge do not cease very soon, it would be advisable, Dr. Wagner states, to brush over its lining membrane a strong solution of chloride of zinc. No injection should be made into this abscess, as the recent adhesions might readily be broken down. — *London Med. Record*, Oct. 15, 1881.

Incision of the Pericardium.

Prof. S. ROSENSTEIN reports the following case in the *Berliner Klinische Wochenschrift*, 5, 1881. On Jan. 16, he examined a boy ten years old. Two weeks before he was taken sick with fever and with gastric symptoms, and since that time he had been short of breath and had a little cough. Careful examination revealed the presence of a very considerable pericardial exudation. Change from lying to sitting made no change in the form or extent of the area of dulness. The boy had no fever, the skin of the thorax was not cedematous. An exploratory puncture with a hypodermic syringe showed pus. The increase of the dyspnoea led Rosenstein to perform puncture with aspiration, by means of which 620 ccm. of purely purulent fluid were withdrawn with the result of immediate and complete euphoria. But on the very next day the pericardial exudation increased,

and a left pleuritis developed, so that two days later 1200 ccm. of pleuritic and, again, 120 ccm. of pericardial exudation were removed with the aspirator. The general condition of the patient now growing worse, it was decided, on the eleventh day after admission, to incise the pericardium under antiseptic precautions. This was done, two drains were introduced, and Lister's bandage applied. A magical improvement of the general condition began. Nineteen days after the incision the boy was well, so far as the pericardium was concerned. The pleuritis having meantime become purulent, an incision of the pleura was necessary, but this also healed completely after some weeks. Rosenstein remarks that the case teaches: 1. That purulent pericarditis, like empyema, may run its course without any fever or any œdema of the skin, so that it can only be recognized by exploratory puncture. 2. The fear of myocarditic changes should not hold us back from removing the exudation in suitable cases, because all the symptoms which make such probable can be explained by functional changes in the elasticity and contractility of the heart-muscles. 3. When there is a large collection of fluid in the pericardium, change of the patient's position may have no influence on the height of the area of dulness, so that this criterion cannot be relied upon in differentiating from dilatation of the heart.—*Amer. Journ. of Obstetrics*, Oct. 1881.

Severe Chronic Gastric Catarrh treated by Washing out the Stomach.

Professor RIVA relates, in the *Rivista Ital. di Terapia ed Igiene*, 1881, the case of a man who had suffered for eleven years from gastric catarrh, the disorder becoming steadily worse, until at last he vomited his food mingled with blood. In this condition he was admitted into the hospital at Perugia. He was extremely emaciated, and percussion in the epigastrium showed that the stomach was greatly distended. He suffered while in hospital from extreme weakness, sour eructations, intense thirst, anorexia, vomiting (which was more frequent in the morning than at night), and constipation. The vomited matter was of very offensive odour, frothy and sour; under the microscope it presented digested and undigested fibres of meat, starch-granules, fat-globules, mucus-globules, epithelial cells, and sarcoma. Dr. Riva determined to try the effect of washing out the stomach; and used for the purpose a Nélaton's sound, made rigid by the introduction of a metallic wire; to this was fitted a Kussmaul's pump, and the operation was conducted cautiously, so as not to injure the gastric mucous membrane. The fluid used was a solution of 6 grammes (93 grains) in 1000 grammes (about 35 ounces) of water. After two or three operations, the presence of the tube in the stomach did not cause any attempt at vomiting. As this treatment produced only transient improvement, the quantity of bicarbonate of soda was increased to 10 grammes in 1000 of water. The treatment by bicarbonate of soda having been continued ten days without other marked result than cessation of the vomiting, solution of sulphate of copper (5 grammes in 1000 of water) was injected, and allowed to remain three or four minutes. Under this treatment the patient rapidly improved, and left the hospital a month after admission, having gained 9 kilogrammes (nearly 20 pounds) in weight.—*London Med. Record*, Oct. 15, 1881.

Hydatid Tumour of the Liver in a Young Child.

Hydatid disease of the liver is an affection which attacks young children so infrequently that the following case seems worthy of record.

S. W., a perfectly healthy-looking boy aged four years and a half, came under treatment at the Manchester Southern Hospital on the 22d of September, 1880.

Two days before, while playing with other children, a bigger boy took hold of him round the waist and lifted him from the ground. He ran home crying, and complained of pain about the stomach, and on examining him his mother found a swelling in the abdomen.

When he was admitted to the hospital a bulging prominence was found in the epigastrium, rather to the right of the median line. On palpation a globular tumour could be felt about the size of a small orange; it was smooth, tense, somewhat elastic, but not fluctuating. There was no hydatid fremitus, nor was there any pain or tenderness on pressure. It could be seen and felt to move freely with the respiratory movements. On percussion the dulness over the tumour was found to be continuous with that of the liver. There was no general enlargement of the liver; in the right mammary line it measured two inches, but slightly to the right of the median line (i. e. in the line of the tumour) three inches and a quarter. The lower margin of the projection was one inch from the umbilicus. There had been no jaundice or other constitutional symptoms. Owing to unwillingness on the part of the boy's parents nothing was done for two months, during which the swelling increased in size, and approached on the surface. On November 15th it was explored by means of the aspirator and a fine needle, and thirteen drachms of fluid were evacuated. The fluid was perfectly clear; it contained no albumen, but abundance of chlorides, so that, although no echinococci or hooklets could be found under the microscope, there could be no doubt of the hydatid nature of the tumour. There was no urticaria after the tapping, a symptom which is of tolerably frequent occurrence. This sequela has been supposed to be due to an escape of a small quantity of hydatid fluid into the abdominal cavity. If this was the true explanation there certainly ought to have been urticaria in this boy's case. Wishing to insure perfect quiet, chloroform was given, hoping that the small quantity necessary would not be followed by sickness. However, as soon as the needle was withdrawn, violent and repeated retching occurred, so that a drop or two of the fluid could hardly fail to have escaped into the peritoneum. It may be added that in neither of these cases was any blood drawn through the aspirator, as sometimes occurs, on account of the possibility of which event Dr. Murchison advised that the aspirator should not be employed.

In this case the tumour slowly diminished in size, and two months after the aspiration not the slightest fulness could be felt over the region formerly occupied by the cyst.—*Lancet*, Oct. 29, 1881.

Filaria Sanguinis Hominis.

Dr. STEPHEN MACKENZIE recently brought before the London Pathological Society a patient suffering from hæmato-chyluria, in which the filaria were found in the living state. This parasite, like so many similar creatures, presents us with an example of alternation of generations; or, more correctly speaking, of the need of two hosts for its full development. The minute almost structureless worms found in the blood of the human subject in such vast numbers are the *embryonic* forms of the filaria which requires the mosquito in which to develop into the sexually mature worm. The mosquito feeding on the blood at night, when the filarie are generally alone to be found, becomes gorged with them. Their growth in the mosquito has been traced by Lewis and Manson, and it is presumed that they are only liberated from the body of their host by its death in the water to which it always finally resorts. The nematoid is thus set free, and possibly undergoes further development; for the mature worm measures some three inches in length. Its passage into the human body is easily explained; and the analogy

in this respect with the larger nematoid—the guinea-worm—is one which Dr. Vandyke Carter ably illustrated. Once within the human body, the worm lodges in the tissues, but as to its migrations, and, indeed, its ultimate resting-place, but little is known. It would seem, from its discovery in a lymphatic abscess by Bancroft, and in a lymph scrotum by Lewis, to have a peculiar aptitude for selecting the lymph channels for its habitat; a selective power not more remarkable than that which urges the trichina to lodge in muscular tissue. This is further borne out by the fact that its embryos—the *filaria sanguinis hominis*—are met with in the blood and the urine of the subjects of chyluria and nævoid (or lymphatic) elephantiasis.

Now, although the various discoveries which have been made—at the expense of so much patient research and at such various times that, as Dr. Cobbold remarked at the meeting, they form each distinct “epochs”—have enabled us to form the above complete sketch of the life-history of the parasite, there are lacunæ still to be filled up. Thus knowledge is wanted, upon the growth and migration of the parent worm after it has gained entrance into the human body, also as to its duration of life, and particularly as to the question whether it can take on the power of sexual reproduction, and if so, for how long a time. The myriads of filariæ that are probably daily reproduced in the body of such a patient as that under Dr. Mackenzie's care seem to demand such a fact as alternate generations, and also to raise the question as to the time during which the process of reproduction can continue. There is no reason to believe that the embryonic filariæ in the blood can undergo further development within the human body; indeed, analogy, as well as the remarkable discovery of an intermediate host in the mosquito, are opposed to this notion. Again, filariæ have been found in the blood apart from chyluria or any outward manifestation of lymphatic derangement; but this is explicable if it be admitted that the adult worms may lodge in other parts of the body in communication with bloodvessels alone. Conversely, chyluria may exist without filaria, and the case mentioned by Dr. Mackenzie, where the parasite was found in the man's blood in India, but could not be found when he came to England, is explicable on the view that though the parent organism might have perished, or yielded no more embryos, yet the change excited by its presence in the lymphatic channels, and therefore the chyluria, might still have persisted.

The precise mechanism of chyluria still requires to be explained, and until it is elucidated an important part of the subject will remain obscure. The question of the pathology of chyluria was, however, barely touched upon on Tuesday: Dr. Mackenzie limiting himself to the statement of the facts observed in his case; the most important in connection with the urine being that besides having all the chylous characters, it invariably contained more or less blood—that passed by day containing more blood and filaria, that passed by night being more milky; and that filariæ were found in it, especially in connection with blood coagula. The most remarkable feature of the whole case lay in the periodicity shown by the filariæ in their time of appearance in the blood. During the whole period of the man's stay in hospital, the blood had been examined regularly every three hours, with the constant result that, by night, the filariæ abounded and by day were entirely absent. From 9 A. M. to 9 P. M. they were absent; they appeared at the latter hour and increased up to midnight, then decreased till at the first-named hour none were found. These observations entirely confirmed those of Manson, and particular stress was laid upon their nocturnal wanderings and the habits of the mosquito. It is certainly singular that the time selected by the mosquito should coincide with the presence of the parasite in the blood stream, and the connection of these two facts is not the least wonderful chapter in the life-history of the parasite. But whatever the explanation of the periodicity—Dr. Vandyke

Carter pointed out that it was not invariable—a valuable addition to our knowledge of it has been made by Dr. Mackenzie. He found that whereas the time of ingestion of food bears no relation to it, it is otherwise with the time of rest and sleep, for when the patient was up during the night and slept during the day the period of filarial migration was similarly inverted.—*Lancet*, Oct. 22, 1881.

Psoriasis from Borax.

Among the cutaneous eruptions which may result from the administration of drugs, psoriasis has not, according to Dr. W. R. GOWERS (*Lancet*, Sept. 24, 1881), been hitherto included. The following facts, which he narrates, show that an eruption of characteristic psoriasis may result from the internal administration of borax. The facts have been met with in the use of borax in the treatment of obstinate cases of epilepsy, in which bromide fails. The first instance was in the case of a man who had taken borax for nearly two years in doses of first fifteen grains and then a scruple three times daily. An eruption of psoriasis made its appearance on his limbs and trunk, developing to a considerable extent in the course of a few weeks. Five minims of arsenical solution were added to each dose of borax, and the eruption rapidly disappeared. Shortly afterwards Dr. Spencer of Clifton, in mentioning to me a case of epilepsy in which he had given borax with advantage, inquired if I had met with any inconvenience from its use. I told him of this case, in which I thought it possible that the psoriasis was produced by the borax, and he informed me that in his patient the same eruption had just appeared. In this case also the rash rapidly cleared away under the influence of arsenic, and a few weeks later Dr. Spencer wrote to me, "I have not the slightest doubt that the borax caused the psoriasis, or that the arsenic cured it." A third instance has lately come under my notice. The patient was a young man who had suffered from epilepsy since infancy, and was always rendered worse by bromide, so that he was brought to me with the request that bromide might on no account be given. He took borax, first fifteen grains and then a scruple three times a day, with greater benefit than had resulted from any previous treatment, and after eight months an eruption of psoriasis appeared. Arsenic was added, but the result of treatment has not yet been ascertained.

The eruption in these cases occurred on the trunk, arms, and legs, but more on the arms than elsewhere. The face was free. It was located on both the flexor and extensor aspects. The patches varied in size, up to an inch and a half in diameter. Their appearance was quite characteristic, but the scales were not so thick as they sometimes are in ordinary psoriasis. In no case was there a history of syphilis, and in Dr. Spencer's patient syphilis could, with certainty, be excluded.

Gangrenous Eruption in Connection with Chicken-pox and Vaccination.

At the meeting of the Royal Medical and Chirurgical Society on October 25, Mr. JONATHAN HUTCHINSON narrated the details of a case which had been brought before the society two years ago. A child in perfect health was vaccinated with several others from the arm of a healthy infant. None of the other children suffered. In this child nothing unusual happened to the vaccination-vesicles, which ran their course naturally. On the eighth day after vaccination, however, an eruption came out on the body and limbs, which three days later was diagnosed by the vaccinator as variola. Some of the spots had at this time become dusky, and threatened to slough; and afterwards gangrene attacked large numbers of them. Between the eleventh and the twenty-first days, no

surgeon saw the child. It died on the latter date; and, an inquest having been held, the coroner requested Mr. Hutchinson to examine the body, and to report on the nature of the disease. The body, which on a former occasion was shown to the society, and of which drawings were again produced, was that of a well-grown healthy child. It was covered with gangrenous sores; the sloughs being black, and in many instances extending into the subcutaneous cellular tissue. Some of them were as large as shillings. There were numerous smaller sores on which no gangrene had occurred. The sores were arranged with tolerable symmetry over the scalp, face, trunk, and limbs; but the hands and feet were exempt. A *post-mortem* examination by Dr. Barlow showed no disease of internal organs. The child had died from exhaustion in connection with the extensive affection of the skin. The author stated that, so far as he knew, this was the first example of a gangrenous eruption following immediately upon vaccination; and that he was inclined to regard it as an instance of the vaccinia exanthem running, in connection with idiosyncrasy, an unusual course. Since the case was first brought before the society in November, 1879, another almost similar one had occurred in Dublin, and had been carefully recorded by Mr. William Stokes. By the kindness of Mr. Stokes, drawings representing the condition of his patient were presented to the meeting. In this instance the patches of gangrene, although larger, were fewer in number and more superficial; and the infant, although for a time in great danger, eventually recovered. The two cases were almost exactly parallel, excepting that in Mr. Stokes's case a much shorter interval between the vaccination and the appearance of the eruption was assigned by the mother. There were, however, great doubts as to her accuracy and truthfulness, since the medical man whom she asserted to have vaccinated the baby said that he certainly had not done it on the day that she alleged. The eruptions affected the same parts in the two children. In both the hands and feet were exempt; and in neither did the vaccination-spots themselves become gangrenous. The author next proceeded to another part of the subject—the attempt to demonstrate that chicken-pox does occasionally assume a gangrenous form, and present conditions very similar to those just described in connection with the vaccinia exanthem. He had, he said, for ten years or more been in the habit of recognizing a gangrenous form of varicella, and several patients suffering from it had come under his care at the Moorfields Hospitals with suppurative iritis. In some cases the disease had proved fatal; but in the majority the patient recovered, with deep scars, and sometimes with great damage to the eyes. In the worst cases, the eruption involved the whole thickness of the skin, and left an abruptly margined, punched-out ulcer. The author quoted from a paper published by Dr. Whitley Stokes, of Dublin, in 1807, in which this malady was, he thought, clearly described. Dr. Whitley Stokes said that it was well known in many parts of Ireland under the name of “the white blisters,” “the eating hive,” and “the burnt holes.” Dr. Whitley Stokes had noticed the resemblance of the disease to chicken-pox, but had attempted to diagnose between them, alleging that, in chicken-pox, the fever always preceded the eruption; and that the pustules always dried quickly. The author of the present paper contended that neither of these distinctions would hold good, and drew attention to the fact that Dr. Whitley Stokes had, like himself, observed that the eruption usually occurred in very healthy children; that at its first stage it was like chicken-pox; that severe inflammation of the eyes sometimes occurred; and that the worst cases ended fatally. The final proof upon which the author relied that the eruption was no other than a modification of varicella was, that he had seen it repeatedly occur to one child in a family whilst several others were going through varicella in its ordinary form. For two examples of this, he had recently been indebted to his

friends Dr. Barlow and Dr. David Lees, of the Children's Hospital. Of one of these cases a drawing was shown. The author referred to some wax casts in the Guy's Hospital Museum which, he said, well illustrated the condition which he had been describing. They had been named *rupia escharotica*; but he could have no hesitation in believing them to be examples of gangrenous variella. In conclusion, he urged that if the proof were accepted, that, in connection with idiosyncrasy in perfectly healthy children, the eruption of variella might occasionally assume a severely gangrenous type, there could be but little difficulty in admitting the same possibility as regards the vaccinia exanthem. By the term vaccinia exanthem he intended to designate a general eruption, sometimes erythematous, sometimes lichenoid, and sometimes vesicular, which, although unfrequent, was admitted by all experienced vaccinators to be occasionally seen. It had been especially described by Mr. Ceely, and was referred to by Hebra and others. It was, of course, the analogue of the skin-eruption in variola.—*Brit. Med. Journal*, Oct. 29, 1881.

Surgery.

Operations for Chronic Disease in Phthisical Patients.

At the meeting of the Medical Society of London Mr. BRYANT read the history of a young man who for some years had suffered from disease of the knee-joint, and when he came under Mr. Bryant's care there was evidence of consolidation of both apices of the lungs. The thigh was amputated, the wound healed well, and the chest symptoms improved, while the physical evidence of lung disease diminished. In short, it was a case illustrating, first, the possibility of rapid recovery from a serious operation during the course of phthisis, and, second, the fact that the removal of a chronically diseased joint may be followed by improvement in lung trouble. The case is now by no means isolated, but is one of a series, which have been published from time to time. We may study such a case from two points of view, as showing the influence of general disease upon local conditions, and the influence of local disease upon general affections.

It is not difficult to understand why general constitutional states must influence local disease processes, and it accords with all experience and preconceived ideas that the constitutional effects of pulmonary phthisis may retard, or even prevent altogether, the recovery of a chronically diseased joint. Under such circumstances amputation may be demanded for local conditions quite amenable to milder methods in patients of robust frame. But the question arises whether the same is true of wounds. Do constitutional states play any part, or any considerable part, in the history of a wound? Hitherto the answer to such a question would have been deemed simple and distinct in the extreme—that they did. But it is now asserted, by some of the more ardent disciples of Professor Lister especially, that our present knowledge of the processes of wound healing, and of the local causes of their failure, has placed us in a position of complete independence of the general systematic condition when called upon to treat a wound. It is asserted that, in every case where certain local conditions are observed, primary union of wounds may be insured. We, at any rate, know that the *vis medicatrix naturæ* is especially exerted and manifest in the healing of injuries of all kinds, and that further knowledge merely adds to the occasions of wonder that so grave and complete injuries can be repaired. It is, however, open to us to say that probably constitutional cachexia, as from phthisis, when very marked, may arrest the healing of a wound. This position seems to be in accord with our pre-

sent knowledge, and for correction will require demonstration of its error, and not mere assertion. The practical outcome of this is, that, granted amputation to be advisable, there are certain stages of the general disease which admit of the operation, while in others it is inadmissible. Where the lung disease has passed into the third stage, and there are cavities surrounded by large masses of caseous lung tissue, where the pyrexia is marked and constant, and the other organic functions are interfered with, it would be unwise to perform any operation not immediately necessary to save life, as the surgeon's wound might not heal, and, continuing to suppurate, would be a constant drain upon the already enfeebled vital powers. This is the rule as applied to operation for fistula in ano, where it has been found to work well, and where also operating during the more severe stages of the disease in disregard of this rule has proved disastrous.

But it is the other view of such cases as Mr. Bryant's that is the more important, and was more specially raised by him at the Medical Society. This suggests two questions, Whether, and how far, local diseases of bones and joints may cause and perpetuate phthisical changes in the lungs, and whether, such visceral disease having been lighted up, removal of the diseased bone will ameliorate the condition of the lungs? Although not actually demonstrated as regards man, there is yet every reasonable probability that chronic disease of bones or joints, especially if attended with caseation of inflammatory products, may be the starting point of genuine tuberculosis. But it is by no means so probable that the more common chronic caseating pneumonia of phthisis is due to any similar cause; and although we cannot assert the negative, and may even be willing to entertain the supposition as one not unlikely to be established as our knowledge becomes more complete, we must at present explain differently the connection between such bone diseases and the common lung changes of pulmonary phthisis. The two affections may be both regarded as expressions of one and the same "dyscrasia," and a man who from an injury gets chronic caseating osteitis and arthritis may be held to be also predisposed to chronic caseating pneumonia from causes inefficient to produce such results in the robust. The pain, the enforced rest, the confinement to the house or to a close room or the ward of a hospital, disturbed sleep, impaired digestion, and especially the prolonged pyrexia, with its necessary increased oxidation and elimination by the lungs, may each and all bear some share in setting up lung mischief. If to this be added suppuration, with the constant drain upon the blood and the unnatural activity of the hæmatopoietic processes, especially in the lymphatic structures, we have a further link in the etiological chain. Should the disease processes in the lungs be once established, it is still more obvious how all these influences must retard if not jeopardize their subsidence. The harmful influence of bone and joint disease both in the causation and continuance of phthisis may thus be granted. And if the above expresses all the truth, the indications for treatment are plain—remove at once the offending bone or joint. But if the bone disease be of an infective nature, such a course would be merely closing the stable door after the horse was stolen, if the poison be of a nature to multiply within the body. Amputation of a caseous focus of a general tuberculosis would therefore be useless.

The cases in which this line of practice may be carried out with most hope of success are, then, those in which the pulmonary trouble is distinctly secondary in point of time to the disease of the bone, and where the bone disease is advanced and attended with pain and discharge, while the lung disease is limited in area and early in stage. In proportion as these conditions become altered the indication for treatment gradually shifts, until where the lung condition is primary, very advanced and wide in its area, or is merely a part of a general tuberculosis, and the bone disease is secondary and early and not attended with suppuration, amputation would only be the means of hastening death.—*Lancet*, Oct. 29, 1881.

New Methods of Treating Erectile Tumours.

M. CONSTANTINE PAUL presented to the French Academy of Medicine, recently, a child whom he had cured of an erectile tumour by vaccinating the growth. M. Paul claimed that he had devised a new method for treating this class of disorders. We are not aware that he claimed for his method of treatment any essential originality. At any rate, vaccination as a method of treating small naevi has long been known to English and American surgery. But M. Paul described a new and peculiar process of performing the operation for vaccination, by means of which he had obtained the specially good results to which he called attention. In vaccinating by the ordinary method it would be quite probable that some part of the tumour's surface would not become affected. In this case the cicatricial tissue resulting from the inflammatory action would be only developed at certain points, leaving the rest of the tumour unaffected. In order to secure uniform inflammatory action throughout the entire surface, therefore, M. Paul covers the tumour with a layer of vaccine lymph, and then through this punctures are made all over the parts desired to be affected.

M. Paul presented a case treated in this way with quite notable success. The patient was a little girl who had had a large erectile tumour on the back of the head. It was situated below the occiput, extending on the right side nearly to the ear. It was, according to M. Paul, at the same time cutaneous and subcutaneous. The vaccination pustule had affected the whole part, and was three months in entirely healing. The skin where the tumour had been was then completely devascularized, but there was some erectile tissue remaining beneath it. This M. Paul believed, from previous experiences, would finally atrophy and disappear.

In a subsequent discussion upon this method of treating erectile tumours, MM. Gosselin and Blot both took the ground that M. Paul's cure was incomplete, and that in all cases where there was any subcutaneous vascularization, vaccination would be nearly futile. It could, however, cure superficial erectile tumours, and in the subcutaneous forms it would at least give a hard, strong covering to the tumour, which would prevent any danger from ulceration or rupturing with hemorrhage.

Commenting upon this procedure, M. E. Ricklin (*Gazette Médicale*) refers to another easy method of treating these tumours, which has been successful in the hands of Dr. Schrumpf. This practitioner treated several cases of bandaging and compression. The tumours were very large, but were situated either on the fore- or upper-arm. By bandaging the extremity from the fingers up, the erectile tissue was made gradually to atrophy and disappear.—*Med. Record*, Nov. 5, 1881.

Visceral, especially Renal, Syphilis.

M. BARTHÉLEMY reports (*Annales de Derm. et de Syph.* 1881, No. 2, p. 272) five cases of renal disease in connection with syphilis. In the following instance the patient improved under specific treatment. A woman, aged 33, who had been infected three years before, was admitted into the St. Louis Hospital, under the care of M. Fournier, in November, 1879. Six months previously she had been under treatment for mucous patches, vertigo, and pain in the head. There was at that time no albumen in the urine, and after three months' treatment the woman went out cured. In October diarrhoea appeared; and at the beginning of November oedema of the lower limbs and genital organs was noticed. On readmission, the face also was puffy. There was intense dyspnoea, and *rdles* were

audible all over the chest, but there was no dulness, nor pain in the loins. The urine was copious, and contained a large quantity of albumen. The patient subsequently suffered from an iliac abscess, but she gradually recovered under anti-syphilitic remedies, and on her discharge from hospital the urine became only slightly cloudy on the addition of nitric acid.—*London Med. Record*, Oct. 15, 1881.

Aspiration of Suppurating Buboec.

In a paper published in the *Annales de Derm. et de Syph.*, 1880, p. 224; and 1881, p. 308, M. LE PILEUR reports nineteen cases of buboes treated by aspiration. Seventeen of the buboes were in the groin; of these, twelve followed soft chancres, six being virulent and six simple abscesses. One was in a syphilitic subject, two were consecutive to scabies, and three were strumous buboes. The remaining two were submaxillary abscesses. In buboes caused by chancre, the author advises that the pus should be inoculated after aspiration, and, if it be found to be virulent, that a solution of nitrate of silver should be injected into the bubo; thus, according to the author, other openings may be prevented. Even if the opening ulcerate, the course is said to be much milder than after the use of the bistoury. M. Le Pileur thinks suppurating adenitis of every kind ought to be treated by aspiration when fluctuation is distinct. The scar is nearly invisible, or at least insignificant. The duration of the affection is shorter than under the ordinary mode of treatment. The nineteen cases gave an average duration of about twenty-four days after aspiration. For the mode of operating, the author refers the reader to his *Etude sur les Adénites Inguinales*, 1874; but, as far as can be gathered from the cases reported, the pus would seem to have been simply drawn off through a trocar, of which the point could be concealed, and a shred of lint placed in the opening and kept there for about twenty-four hours. Poulitices were also applied.—*Lond. Med. Record*, Oct. 15, 1881.

Scrotal Calculus.

A unique case of this affection is reported by LIPPOMAN, in the *Wratschebyja Wedomosti*, 1881, No. 454. The patient, a peasant, sixty-eight years old, stated that fifteen years previously he had suffered from difficulty in passing water, which finally became so aggravated that he consulted a physician, who removed from the scrotum by incision a stone weighing one hundred and twenty grammes. A urethral fistula resulted, through which all the urine passed, at first with ease, but of late with increasing difficulty. On examination a fistula was found just behind the peno-scrotal junction. All endeavours to pass a metallic or an elastic catheter per urethram were futile; only the anterior portion of the pendulous urethra was permeable. The scrotum was as large as a child's head, and was distended by a hard mass. The testicles were dislocated toward the external inguinal apertures, and were very much atrophied. On introducing a catheter into the fistula, it was arrested by a stone. On the following day an incision was carried from the fistula backward along the raphe of the scrotum, and four calculi, weighing in all forty grammes, were removed. They were rough, of a grayish-yellow colour, showed facets, and consisted of phosphates. When placed in apposition they were as large as a goose egg. The cavity left after the operation was cleansed with carbolic acid, drained, and healed kindly, leaving a fistula, through which the patient urinated. Later he emptied his bladder with the aid of a self-made catheter, consisting of a goose-quill.—*Med. Record*, Nov. 5, 1881.

A Case of Popliteal Aneurism Cured by Means of Esmarch's Bandage and Digital Compression.

E. Z. DERR, M.D., U. S. N., reports the following case: The patient, a strong, robust man, was admitted to the U. S. Naval Hospital, Norfolk, Va., on April 15, 1881. Examination revealed the existence of a large, pulsating tumour in the left popliteal space. The calf of the leg was very much larger than its fellow, and both sensation and motion were very much diminished. Owing to this condition of things, no active surgical interference was resorted to until June 10th, when Esmarch's bandage was applied, and allowed to remain on forty-five minutes. At the end of that time the pain became so intense that it was removed. Pulsation returned after the removal of the bandage, but its force was perceptibly diminished.

On June 16 another application of the bandage was made, and allowed to remain one hour and twenty-five minutes. Pulsation returned on the removal of the bandage, but its force was still further diminished.

On July 9 the bandage was again applied, and allowed to remain one hour. At the same time digital compression was made over the femoral, and continued for six hours after the removal of the bandage. Pulsation returned after the cessation of the pressure, but was greatly diminished, and the tumour was found to be much smaller and firmer.

10th. Digital compression was continued for two hours, causing still further diminution in the size of the tumour.

11th. Compression was continued for three hours to-day, with further good results.

12th. The compression was kept up for five consecutive hours to-day, and on the removal of pressure no pulsation could be detected.

At the present writing—September 9—a hard, fibrous mass, not larger than a walnut, occupies the site of the large, pulsating tumour which previously existed.

The case is reported because it furnished another illustration of the utility of the combined method in the treatment of popliteal aneurism.—*Medical Record*, Oct. 29, 1881.

Rupture of the Plantaris Muscle.

In *The New York Medical Journal and Obstetrical Review* for July, 1881, Dr. A. B. JUDSON gives three cases in which he diagnosticated this injury. He remarks that it is seldom found described in systematic works on surgery, although its occurrence is probably not very uncommon. Its most remarkable feature is the trivial nature, or almost entire absence, of an immediate cause. Persons are attacked while quietly walking in the street, stopping suddenly under the impression that they have been shot in the leg. Apart from ecchymosis, which is met with in but a limited number of cases, the only objective signs are œdema and deep-seated induration, and these are by no means constant. If there is an obvious gap in the muscles, with an adjacent muscular tumour, the case is to be considered one of rupture of the muscles, the term *coup de fouet* being conveniently used to indicate those cases in which the exact lesion remains undetermined. The diagnosis depends on (1) the suddenness of the attack; (2) the insignificance of the apparent cause; (3) the location of the trouble; (4) the pain, which is absent or slight when the part is at rest, and produced or aggravated by those motions of the limb, active or passive, which disturb the muscles of the calf; and (5) the great disproportion between the objective and subjective symptoms. Recovery is always protracted, and is probably not much facilitated by treatment, which, however, should not be neglected, for the prognosis is sometimes unfavourable,

especially when the affected limb is the seat of deep varicose veins, or shows traces of former phlebitis. Local and general remedies should be directed toward the relief of pain. Repair of the injured structures should be promoted by preventing motion or disturbance of the part affected. The condition which seems best adapted to secure this object is that of enforced fixation with the knee moderately flexed and the ankle moderately extended. As recovery progresses, locomotion will be facilitated by a high-heeled shoe, which prevents the foot from being unduly flexed on the leg. Cases of this injury present opportunities for the exercise of judgment in the decision of the question of abandoning further rest and resorting to motion and exercise.

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Experimental Researches on the Forcible Straining of Genu Valgum.

M. MENARD studies in this paper (*Revue de Chir.*, 10th Sept. 1881) the lesions produced in forcible straining of the knee on the cadaver, whether with the hands or with the apparatus of Collin. Without entering, he says, upon the clinical side of the question, and without establishing a comparison between this operation and other modes of treatment, some slow and belonging to orthopædic practice, others rapid, such as osteotomy, his object is to clear up the mechanism, and to determine the lesions, of the purely operative proceeding, as constituting one of the elements which permit the question to be decided as to its fitness and uses in surgery. His conclusion is that in rapid straightening of the genu valgum by Delore's method, the operative proceeding carries the knee, not directly outwards but outwards and backwards; at the same time, there is a tendency to bend the tibia inwards on the femur, and to force the extension of the knee. The articulation resists, therefore, not only by its external lateral ligament, but also by those which limit the extension, the posterior ligament and the intra-articular ligaments. This mechanism explains why it is the femur which comes away rather than the articulation. The lesion produced is very generally the stripping of the epiphysis from the inferior extremity of the femur and a large and considerable periosteal attachment, behind and external to the diaphysis. The employment of Collin's apparatus, or of any other similar one, appears to him preferable to manual force. With the hands, somewhat less lesions are produced; the detachment of the epiphysis is accompanied with crushing of the spongy tissue; moreover, the ligaments are apt to be torn away. The results appear to be very analogous in patients from two to six years of age. Beyond that age, it is a question whether the resistance of the femur becomes greater than that of the ligaments. He thinks that even then tearing of the ligaments must be very rare if the operation is well performed. This opinion is indeed only the expression of the results obtained by MM. Farabœuf and Terrillon.—*London Med. Record*, Oct. 15, 1881.

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A Form of Gonorrhæal Arthritis.

In the *Arch. Gén. de Méd.*, May, 1881, p. 541, MM. DUPLAY and BRUN discuss a form of gonorrhæal arthritis which, according to them, had not before been fully described. This variety of arthritis may come on suddenly, without any known immediate cause, or it may follow slight injury. Most frequently, however, it is preceded by malaise, slight fever, loss of appetite, etc. The first symptom is pain, which comes on with great acuteness. This pain begins, and is always worst, just at the spot where the articular surfaces of the bones touch each other, and is increased at night. Besides this spontaneous pain, acute suffering is caused by pressure above the joint. Swelling soon follows the pain, and it also first appears exactly at the line of junction of the bones which form the joint.

There is little or no effusion into the synovial cavity, the swelling being chiefly due to infiltration of the periarticular tissues. The œdema extends above and below the affected joint, and sometimes there is an obscure kind of fluctuation, leading to a suspicion of abscess. Two cases are mentioned in which incisions were made under this belief. The swelling is not due to effusion into the sheaths of the tendons. In the treatment of this form of arthritis, the most important point is absolute rest of the joint by means of a plaster-of-Paris bandage. The pain then soon disappears, and, in favourable cases, the joint recovers almost entirely. If, however, the joint be not fixed until several days after the onset, more or less stiffness is likely to remain; and if the affection be neglected altogether, ankylosis will probably occur; indeed, this sometimes happens in spite of careful treatment. The wrist and the elbow appear to be the joints most frequently attacked, while the knee, which is frequently the seat of the effusive form (hydrarthrosis) is comparatively seldom involved. However, any joint may suffer, and the authors have seen marked examples of this form of arthritis in the metacarpal, phalangeal, and sterno-clavicular articulations. But whatever joint is attacked, the symptoms are essentially those which have just been described. The paper concludes with notes of six cases (three of the patients being women), illustrating the various points already mentioned; the chief features of this form of joint-affection are the occurrence of pain and swelling, which always begin and remain most marked exactly at the interarticular line, the presence of crackling, and the liability to ankylosis if the joint be not fixed early.—*Lond. Med. Record*, Oct. 15, 1881.

Treatment of Floating Bodies in the Knee.

In a recent contribution to the *Rev. de Chir.* (Nos. 5 and 6, 1881) Dr. G. GAUJOT, of the Hôpital du Val-de-Grace, states that, since the inquiry of Baron Larrey, in 1861, on the treatment of floating bodies in the knee, direct extraction through a free incision has advanced much in the favour of French surgeons. The subcutaneous operation, though sound in principle, is often attended in practice with certain risks and disadvantages. Penetration of air and blood into the articular cavity cannot always be avoided, and is very likely to result, when through the size of the foreign body it is necessary to cut freely with the tenotomy knife, or when the synovial membrane is much lacerated. This result exposes the patient to the risks of synovitis, which either may be restricted to the plastic form, or may become purulent. Plastic arthritis, in consequence of the functional impairment in which it results, is a serious complication, and purulent arthritis is very often fatal. Another disadvantage attending the subcutaneous operation is the frequent difficulty and, in some instances, the impossibility of effecting extrusion of the floating body through the orifice made in the synovial membrane. Again, during the interval between the first and second stages of the subcutaneous operation, there is always a risk of the foreign body slipping back into the joint, as there is very little tendency for it to contract adhesions to the peri-arthritis cellular tissue. This result is the more likely to occur when the synovial membrane has been freely incised, and when the foreign body has not been moved to any great distance from the opening into the joint.

It is stated in this communication that the death-rate from direct extraction has, during the past fifteen years, been reduced from twenty-two to seven and a half per cent. The author endeavours to prove that this reduction is not solely due to the influence of Listerism. An analysis of fifty-four collected cases in which arthrotomy has been performed since 1863, indicates that a like success to that attained after the use of Lister's method, may be attained by other antiseptic methods, and, indeed, after the use of ordinary dressings. Of twenty-nine

cases of floating body treated by arthrotomy, in which Lister's dressing had been applied, two were fatal; whilst of eighteen cases in which ordinary non-antiseptic dressings had been applied, only one had a fatal termination. Such a result, it is pointed out, need not cause surprise if one considers the success that has been attained in ovariectomy and enterotomy by Mr. Kæberle, who does not make use of Lister's dressing.

Articular synovial membranes, when affected by chronic hydrarthrosis, acquire, like other serous membranes that have been exposed to the prolonged contact of morbid products, a certain degree of tolerance that renders them less irritable and less liable to become acutely inflamed. When chronic hydrarthrosis is associated with a floating body within the joint, the tolerance of the synovial membrane is increased through the nature of the original articular affection, since, in changes due to rheumatism, there is much less tendency to suppurative inflammation. In order to insure success after direct extraction of an articular floating body, certain precautions must be taken in order to avoid acute synovitis. Such precautions consist in preventing the free access of air to the interior of the joint; in making a clean and small wound; in avoiding as much as possible irritation of the synovial membrane during the removal of the floating body; and in the exclusion of any septic agent. These evils, M. Gaujot holds, may be guarded against without resorting to any strict antiseptic treatment. In considering the question whether the extraction of an articular floating body can insure a permanent cure, the author states that it is to be remembered that in most cases the foreign body does not constitute in itself the articular lesion. It is very often but an epi-phenomenon superadded to primordial changes of a chronic arthritic character.

The operation usually results in the disappearance of the phenomena due to the presence within the joint of a foreign body, but it does not remove the other results due to antecedent articular changes. There may be a cessation of the characteristic pain and less interference with locomotion, but the symptoms of chronic hydrarthrosis, such as swelling of the joint, crepitus, and a restricted range of articular movements, will too often persist. A decision as to the probability of recurrence should be based rather on the form and composition of the floating body, than on the condition of the joint. The prognosis is favourable in those rare cases in which this body consists of a fragment of bone, or a fibrinous concretion, whilst the indications are just the reverse when it presents one of those many forms which have their common origin in fibro-cartilaginous proliferation of the synovial elements. M. Gaujot states, in concluding, that the operation of direct extraction, though one of very little danger, ought not to be practised save in cases where the functional disturbance is severe, and palliative treatment has already been applied, but without success.—*Lond. Med. Record*, Oct. 15, 1881.

Rare Accidents.

In the *Medical Times and Gazette* for October 15th, Mr. CHARLES McIVHOR GOYDER reports three cases of accidents, which are interesting from the extraordinary character of the injuries. The first case is one of *compound comminuted fracture of the astragalus without fracture of the malleoli*, occurring in a very large and heavy man, and produced by slipping from a pile of chain and falling on his foot from a distance of about two feet. Upon examination, the foot appeared inverted, the external malleolus projected about an inch through a transverse wound over the outer ankle. There was no fracture of the malleoli, but the lower end of the fibula was cleanly divested of all the structures attached to its tip. Upon introducing a finger into the wound, two small chips of bone came away, cancellous in structure and covered in part by a compact layer; a great

many smaller fragments were removed from the ankle-joint, when the astragalus was found to be almost completely broken up into comminuted fragments. There was no bleeding, and the foot in other respects was quite natural in appearance. The case was treated antiseptically, and placed upon a back-splint with foot-piece, and two side-splints.

The patient did well for two months, when he got an attack of phlegmonous erysipelas. An abscess formed, which travelled up the sheath of the peronei muscles, and was opened; after which the wound quickly healed, and the patient became an out-patient a month later, his leg and foot being placed in an immovable bandage.

Five years afterwards the injured leg was slightly shorter than the other, but not enough so to make him limp; there was good movement in the ankle-joint, and he can bear the whole weight of his body on his foot.

The second case is one of a *depressed fracture of the malar bone without external wound*, produced in a man while intoxicated, by falling and striking his cheek on the curbstone. When the ecchymosis and swelling were reduced, the malar bone was found to be depressed under the orbit, forcing the eyeball upwards and forwards; there was, however, no interference with sight or with the action of the orbital muscles, and examination showed the fundus to be normal. The man subsequently recovered without any marked deformity.

The third case is an *upward dislocation of the scaphoid bone of the tarsus*, produced by falling a distance of seven or eight feet on the toes and forward part of the right foot. On examining the foot there was a marked prominence in the situation corresponding to the scaphoid bone, wider from side to side than before backwards, with edges well defined, but covered by upraised tendons, etc. The foot was partially extended at the ankle-joint, and its inner border somewhat short. There was a noticeable arching of the sole of the foot, and flexion of the ankle-joint caused great pain. Reduction was easily accomplished under chloroform, and recovery occurred without complications.

Midwifery and Gynæcology.

The Mobility of the Pelvic Articulations.

Dr. KORSCH, of St. Petersburg, contributes to a recent number of the *Zeitschrift für Geburtshülfe und Gynäkologie* an account of an experimental investigation of the above subject. He had dilators so constructed that two opposite parts of the instrument could be separated, and both the extent of their separation, and the force required to effect it, measured. This instrument he applied to different parts of the pelvic cavity, and measured the extent to which its diameters could be altered, and the force required to do it. His experiments were made on the bodies of recently delivered women, of pregnant women, of non-pregnant women, and of men. The following are the conclusions he comes to: 1. Both during pregnancy and in patients suffering from large uterine or ovarian tumours, there is not only yielding of the pelvic articulations, but widening of the pelvic diameters. 2. At the pelvic inlet, the greater widening is of the transverse diameter; at the outlet, of the antero-posterior diameter. 3. To enlarge the pelvic inlet requires nearly double the force needed to widen the outlet. 4. Widening of the transverse diameter of the pelvic inlet is accompanied with shortening of the antero-posterior diameter; but widening of the latter does not alter the former. 5. When the transverse diameter of the brim has been enlarged to the maximum extent, the conjugate may still be slightly lengthened;

but when the maximum increase in length of the conjugate has been attained, the transverse diameter cannot be widened. 6. When the transverse and antero-posterior diameters of the inlet are simultaneously expanded by pressure, the amount of increase in each is not so much as when each is separately expanded. 7. Widening of the pelvic outlet diminishes slightly the conjugate, but leaves unaltered or slightly increases the transverse diameter of the brim. 8. The converse takes place when the inlet is widened. 9. In the majority of the cases the greatest amount of mobility was in the sacro-iliac synchondrosis. 10. In those joints of which the mobility was increased, the quantity of synovial fluid was usually somewhat greater. 11. Lengthening of the antero-posterior diameters depends upon the movement of the sacrum; that of the transverse diameters upon yielding of the symphysis pubis. 12. Increase in size of the synovial cavity of the pubic articulation leads to a greater mobility of the joint. 13. The number of deliveries has, apparently, no influence on the mobility of the pelvic articulations.—*Med. Times and Gaz.*, Oct. 29, 1881.

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A Peculiar Condition of the Cervix Uteri which is found in Certain Cases of Dystocia.

In support of the position taken in his earlier communications, that tonic spasm of the internal os is a more frequent cause of dystocia than the statements of the text-books would lead one to suppose, Dr. ALFRED HOSMER has collected notes of a number of additional cases where this condition of the cervix was found to interfere with labor. His conclusions are as follows:—

1. Simple elongation of the cervix, even though it be excessive, disables the uterus by perversion of its force, renders spontaneous expulsion improbable, but in connection with artificial delivery does not produce a condition of things to which the term dystocia can be applied with any propriety of significance.

2. Tonic spasm of the internal os may in single labor be developed so early as to imprison the whole fœtus in the cavity of the uterine body, and in a multiple labor its production may be so postponed as to interfere only with the birth of the last child. Its existence cannot necessarily be referred either to pelvic deformity, to extreme elongation of the cervix, or to the occupation of the cervical cavity by any portion of the unborn child.

Finally, tonic spasm of the internal os has shown a marked tendency to recur in the successive labors of those who have once or even twice survived the danger to which it exposed them, and the patient in whom it occurs for the first time is not necessarily a primipara.—*Boston Med. and Surg. Journ.*, Oct. 20, 1881.

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Exfoliative Vaginitis and Membranous Dysmenorrhœa.

It has been a common reproach to gynæcologists that they are too fond of assuming that disorders of the general system, more particularly hysteria and allied nervous symptoms, when met along with uterine disease, are its result. Dr. COHNSTEIN, in a paper on the subject of membranous dysmenorrhœa and exfoliative vaginitis, published in a recent number of the *Archiv für Gynäkologie*, goes to the other extreme, and, reasoning from a number of cases which he has collected (which collection makes his paper very valuable for purposes of reference), concludes that membranous dysmenorrhœa is not the cause, but the result, of hysteria, or of disorder of the general health. He points out that in nearly all the cases of his collection the general health was much deteriorated; that we know of no local treatment which will cure membranous dysmenorrhœa; that membranes are sometimes passed at the menstrual period without pain; that

in many cases impairment of the general health preceded the painful menstruation. It is very difficult to see in what way hysteria should so modify the functions of the uterus as to make it excrete a membrane each month; and hysteria itself is a thing so difficult to define that it seems hardly possible that proof should be forthcoming of Dr. Cohnstein's theory. But, without going as far as he does, we think he has done good service in calling attention to the facts that nervous and hysterical symptoms going with uterine disease are not of necessity caused by it, and that menstrual pain is modified by the state of the general health in this way—that an amount of pain which a strong, healthy woman would think too trifling to mention, will put a feeble, neurotic individual quite *hors de combat*. In the latter case treatment of the general health may, without modifying the local condition, so improve the patient's power of bearing pain as to remove her from the condition of invalidism.—*Med. Times and Gaz.*, Oct. 8, 1881.

The Origin of Tubo-Ovarian Cysts.

Dr. HENRI BURNIER contributes to the *Zeitschrift für Geburtshülfe und Gynäkologie* a case of the above rare kind, which occurred in the practice of Professor Schroeder. The patient gave a history clearly indicating antecedent peritonitis. When the cyst was removed, it was found that the Fallopian tube, much dilated, opened directly into it, the opening being as big as a shilling (*Markstückgrosse*). Ray-like processes of mucous membrane, continuous with and resembling that of the tube, spread out from the opening over the inner wall of the cyst, some of them meeting at the opposite pole of the cavity. This mucous membrane was everywhere covered with cylindrical epithelium. On examination of the cyst-wall, Graafian follicles could be found, more or less abundantly, in every part of it, except where the tube entered it. The mode in which Dr. Burnier supposes this tumour to have arisen is the following:—First, an attack of peritonitis causing adhesion of the peritoneal surface of the fimbriæ of the tube to the ovary. Then, a Graafian vesicle ripening and coming to the surface at the site of this adhesion. Owing to the greater resistance caused by the inflammatory thickening, this follicle cannot burst, but becomes distended into a cyst (hydrops folliculi). At the same time, the secretion of the Fallopian tube, being retained, dilates the tube (hydrosalpinx). We thus have two collections of fluid, separated by a septum consisting of the wall of the follicle and the fimbriæ of the Fallopian tube. This septum becomes absorbed, and a tubo-ovarian cyst is the result. The adhesion between the tube and the ovary at the site of the dropsical follicle prevents this from projecting from the surface of the ovary, as such follicles are wont to do, and therefore it can only grow by stretching out the healthy tissue of the ovary round it. Hence the presence of Graafian vesicles at every part of its circumference. Dr. Burnier examines the recorded cases of tubo-ovarian cyst. Three of them, he finds, support this theory, and the others contain nothing against it. The theory of Veit, which assumes the coincidence of catarrh of the tube and hydrops folliculi, Dr. Burnier regards as quite compatible with his own view. Richard's theory, that the fimbriæ of the tube embrace the ovary at the time of bursting of the follicle, and that the tubo-ovarian tumour results from the bursting of a dropsical follicle, and effusion of its fluid into the tube, Dr. Burnier regards as untenable—first, because there is not enough evidence that the fimbriæ do embrace the ovary when the follicles break; and, secondly, because it does not account for the presence of cylinder epithelium within the tumour.—*Med. Times and Gaz.*, Oct. 15, 1881.

Incomplete Removal of Ovarian Cysts.

M. TERRIER (*Revue de Chir.*, 10th Aug. 1881) puts the following question: Does the incomplete removal of ovarian cysts, resulting from the existence of extensive solid or vascular adhesions to important organs, give, as has been said, deplorable results, and should it be avoided uniformly, as Kœberlé advises; or is it, on the other hand, an operation which is acceptable, and even a method counselled sometimes by prudence, and not by necessity (Péan)? M. Terrier relates some private cases, and examines the recent publication of cases and statistics by Spencer Wells and Péan, with the following results: 1. Incomplete operations ending with the opening of the cysts, suture of the walls to the abdominal wound, and drainage, give very different results, according to the nature of the cystic tumour. 2. When the cyst is unilocular—as serous cysts and dermoid cysts of the broad ligaments are—the results may be excellent, and the cystic cavity ends by being completely filled up. 3. The same result is perhaps possible in certain cysts which are unilocular from a clinical point of view, but which anatomical pathologists class as multilocular cysts. 4. When the cyst is multilocular, and when the cystic walls are clothed with vegetation, the results are very different. The tumour tends constantly to relapse, the abdominal fistula persists, and the interminable suppuration exposes the patient to chronic septicæmia and exhaustion. 5. Finally, it is to be noted, both in the case of young and of multilocular cysts, that there is a possibility of the rapid development of a tumour already pre-existing on the ovary, which has not been touched, and of which the conditions could not be verified at the time of the operation.—*London Med. Record*, Oct. 15, 1881.

Medical Jurisprudence and Toxicology.*Detection of Arsenic in Wall Papers.*

Dr. WILLIAM B. HILLS takes exception to the wide publicity given to the nitrate of silver as a test for arsenic in wall-papers. He asserts that it is one of the *least* reliable tests for the purpose mentioned. The cases in which the nitrate of silver test gives fairly reliable results are comparatively few, and are essentially the ones in which arsenite of copper (Scheele's green) or aceto-arsenite of copper (Schweinfürdt green) is used as a pigment, unmixed with other substances. These arsenical compounds are, however, seldom thus used, but are commonly employed in combination with other substances, by which means the green color is modified and various tints are obtained, in which, as a rule, the arsenical green cannot be detected by any physical appearance. Under these circumstances the above test will ordinarily fail to indicate the presence of arsenic, and particularly so if the arsenical green be mixed with organic pigments. Many of these latter, when treated with ammonia, furnish colored liquids, the color varying with the nature of the organic pigments. If nitrate of silver is added to such a liquid, any precipitate produced, whatever its true color may be, will ordinarily assume the color of the liquid. For example: yellow arsenite of silver will usually *appear* red in a red liquid. Obviously no conclusion can be drawn in such cases as to the presence or absence of arsenic. Again, the yellow sulphide of arsenic is sometimes used, and arsenic in such cases cannot be detected by nitrate of silver. The test is also useless in detecting arsenious acid in the aniline colors. Dr. Hill's method of proceeding is as follows: Take a sample three or four inches square, cut into small pieces, moisten with concentrated sulphuric acid, and heat carefully

until the paper is thoroughly charred. Let the charred mass cool, add to it about one fluidounce of water, grind up the black mass so that the water may come in contact with all parts of it; filter and wash. The arsenic will be found in the filtrate, which is to be examined by Marsh's test. All chemicals must be free from arsenic. A paper which, treated carefully in this manner, furnishes no arsenical stain on porcelain, does not contain any appreciable amount of arsenic.—*Louisville Med. News*, Oct. 15, 1881, from *Boston Med. and Surg. Journal*.

Poisoning by Carbolic Acid.

Two cases of poisoning by carbolic acid are reported in abstract in the last number of the *Nordiskt Mediciniskt Arkiv*. One of them, described by Dr. J. A. Malmgren, is that of a child aged 5½ months, who had an eruption, followed by an ulcer in his groin, which was ordered to be dressed with carbolized oil (8 per cent.). The next day, he had vomiting, which was repeated during the night. The urine was described by the mother as being "very dark and foul," and the child was very sleepy. The carbolized oil was removed on the third day; the urine was of a deep coffee-colour, and the child slept almost constantly; the pupils were somewhat contracted; the vomiting continued. On the fourth day, the patient's condition was about the same; but in the evening the somnolence had ceased, the vomiting was less frequent, and the urine had become much clearer. The child recovered; but the urine retained a dark colour for a fortnight. In the second case, related by Dr. Nordenström, a child one year old had a large fluctuating swelling in the left parotid and submaxillary regions; it was opened, and a large quantity of pus discharged. The part was dressed with cotton-wool saturated with carbolized oil (1 in 10), over which were placed dry cotton-wool and a bandage. The dressing was changed morning and evening. About an hour after the application of the dressing, the child had vomiting, which continued through the following day. The urine was of a dark green colour, and the evacuations were loose. On the third day, the condition was about the same, and the breathing was impeded. A mixture of equal parts of camphorated oil and olive oil was now substituted for the carbolized oil; but the child died the next morning.—*Brit. Med. Journal*, Oct. 22, 1881.

Case of Poisoning by Atropia.

The patient, a small, weak, anæmic child, aged 6, took by mistake, between 8 and 9 in the morning, a teaspoonful of a solution of atropia, 0.05 to 10.0, or about 35 milligrammes (a little more than half a grain). His face soon became flushed, his gait staggering, and his voice hoarse. An hour later antidotes were administered, including tannic acid, iodide of potassium, and injections of infusion of jaborandi. Soon the patient exhibited hallucinations, and became delirious. Seven and a half hours after the dose had been taken, REINL (*Prag. Med. Wochenschr.*, No. 20, 1880) saw the child, who was restless and unconscious and still delirious, the pulse being 140 and respirations 30. A hypodermic injection was given of 5 centigrammes of morphia (about three-fourths of a grain), and in ten minutes the pulse fell to 100 and the respirations to 20. The restless movements subsided, and in half an hour the patient slept, the pulse falling quickly to 96, and the respirations to 18. The following morning, after a good night's rest, the child was quite cheerful, though there remained twitchings of the muscles of the face and extremities which continued three days. [This case affords no proof that morphia is an antidote to atropia. Children are curiously insusceptible to the action of belladonna. Holthouse has recorded the case of a

boy, aged $3\frac{1}{2}$ years, who recovered after taking half a grain of atropia; and there have been cases of recovery after taking 0.5, 0.6, 1.0, and 1.5 grains respectively. The injection of an infusion of jaborandi could hardly be expected to do any good. It is true that a hypodermic injection of a one-hundredth part of a grain of atropia will instantly check the perspiration and salivation of jaborandi, but the converse is not the case. Atropia is a much more powerful alkaloid than pilocarpin; and in a case of poisoning by atropia recently recorded by Purjesz, of Buda-Pest, as much as $6\frac{1}{2}$ grains of hydrochlorate of pilocarpin had to be administered hypodermically, before any antidotal properties were observed. It is interesting to note the fall in pulse and respiration after the injection of the morphia. It would appear that, although morphia is not an antidote to atropia, it will retard the restlessness and delirium caused by a poisonous dose of that alkaloid.—*Rep.*—*London Med. Record*, Oct. 15, 1881.

An Accident with Hydrofluoric Acid.

Fluorine as an element is as yet unknown, it never having been isolated. The reason of this is that it is so destructive to all apparatus used for the purpose. It has been studied in its compounds and reactions, and its atomic weight has been determined indirectly. It is the only element which has no known compound with oxygen. It unites with many other elements as a monatomic acid radical and forms fluorides and also forms quite a number of double salts. Nearly all these compounds affect glass in the presence of moisture. Its hydride is a strong acid like that of chlorine, and is a gas. It dissolves many of the metals to form fluorides, is easily absorbed by water, and hence the liquid acid is obtained by saturating distilled water with the gas. It has little effect upon platinum or lead, and is transported in gutta-percha bottles as it affects neither this nor wax nor paraffine, but its action upon other organic substances is often very energetic. Mr. ROBBINS, Assistant in the Boston Institute of Technology, once attempted to redistil some of this acid as it is formed in these bottles, but neglected to dilute it one-half, as is usually done when it is wished to condense it without a freezing mixture. When heated, the gas began to come over without condensing. It charred the wooden box which surrounded the receiver, and dissolved and volatilized a piece of writing paper which was exposed to it, leaving only a slight film of a gelatinous substance, probably the gum from the sizing of the paper. Concerning the action of this acid upon animal tissues, little is known. Wurtz's dictionary gives the fullest account of it. He says in substance that it corrodes the skin, giving rise to insufferable pain, and produces a deep ulcer which is very difficult to heal; small drops of it being sufficient to produce white and painful blisters. The reporter had not read this, and was not aware of the great severity of the action of this acid, and carelessly used the stump of a match, the wood of which was saturated with the acid above referred to, to remove the lime, etc., from the surface of a piece of porcelain so as to obtain the freest action on the part where it was desired to etch a hole. When he first noticed that it was getting upon his fingers, he washed them and greased them with tallow, and thinking they were sufficiently protected, he went on with his work. For about an hour and a half he had the match in his fingers the greatest part of the time. Just before getting the hole through, he noticed that the ends of his forefinger and thumb were beginning to be unsensitive, and felt a curious sort of dull pain that perhaps might best be described by saying that the fingers "hurt" a little. When through he washed them well, applied dilute ammonia water and washed that off, and then applied bicarbonate of soda, but these measures did not relieve the pain from soon becoming very uncomfortable, and the fingers

were dressed in a mixture of linseed oil and lime-water, as it felt more like a burn than anything else. This was done between 11 and 12 A. M. That afternoon the pain gradually increased, and in the evening Dr. Blodgett was consulted.

At this time the ends of the fingers were white and very hard; so hard, indeed, as to dull the scalpel with which he endeavoured to cut away some of the skin. The action was still going on, and as the depth to which it had penetrated could not be determined a dressing of cold cream was applied, and later vaseline was used, but neither seemed to allay the steady increase of the pain which now most nearly resembled the sensation of a burn when held near the fire. The only relief obtained was by the application of cold, and this was only partial, and the only variation in it was from bad to worse, and at last it became the most severe pain imaginable, and it was not till four o'clock the next morning, and with the aid of 110 drops of laudanum, that sufficient relief was obtained for a broken nap. The next day the pain had subsided, and the acid had penetrated quite a distance below the skin, rendering the flesh totally insensible and hard, having abstracted all the water from it. The other fingers were only slightly swollen, and the swelling did not extend back as far as the hand, showing that the blood was not poisoned at all. The course of treatment was to remove the destroyed tissue. This it was thought best not to do with the knife, but poultices alternating with frequent soakings in very hot water were constantly employed, which proved effectual, although slow, in its operation, it being fully twenty days from the time of injury till the slough was all removed. It was very dry and tough, and by no means inclined to separate from the surrounding tissues. In four weeks all dressings to the fingers were abandoned, and he was able to use them a little. Only a small permanent loss of tissue has resulted, but now, after three months, the scars are tender, and the sensation is perhaps permanently destroyed. This agrees with the action of this acid as stated by Wurtz, especially as regards the pain, but he does not mention the very important fact that no pain is felt for some time after contact with the acid, which, in the case reported, was between one and one and a half hour, and by this time the surface has become so hard that it is difficult, if not impossible, to check the action underneath, so that the damage is for the most part done before one finds it out.

The difficulty in healing appears to consist in removing the slough, as it heals very quickly when this is out of the way, and after the first siege of pain, which is a long and severe one, the sore is no more painful than any other of equal size. The author thinks that, should he meet with the same accident again, he should lose no time in washing it off as thoroughly as possible and then apply water-glass if this were accessible; if not, an alkali should be used, and if possible the part soaked in water as hot as could be borne, and then cold cream applied or some other dressing which will keep the part soft and also exclude the air.

Mr. Robbins also heard of two other persons who have had misfortune with this acid; they were Dr. C. F. Folsom and a Mr. Lodge. The latter had the end of his thumb badly burned. It was three months in healing, and quite a loss of substance resulted. Books on chemistry and teachers of the science should give greater precautions as to the use of this dangerous reagent.—*Boston Med. and Surg. Journ.*, Oct. 27, 1881.

MEDICAL NEWS.

TO SUBSCRIBERS.

With this number ends the thirty-ninth year of the "Medical News," and also its publication as a monthly. But two professional periodicals—the "American Journal of the Medical Sciences" and the "Boston Medical and Surgical Journal," are still issued, of those which were in existence at the time of its birth, and during the long period through which it has made its regular monthly visits to its readers, it has witnessed the rise of all the rest of its valued contemporaries, many of which started under flattering auspices only to fulfil a comparatively brief career.

It is with feelings of thankfulness to those whose steady support has enabled it already to outlast a generation that its conductors are able to say that it has not only passed in safety through the numerous financial and political vicissitudes which have wrecked so many promising enterprises, but that the increasing demands upon it have necessitated at last a change, which has been for some time in contemplation, whereby it will be greatly enlarged in size and converted into a weekly, thus fulfilling more perfectly the mission, which it has always had in view, of conveying to the profession early intelligence of all that is of importance to the practitioner. With this object, very extensive and complete arrangements have been made. The editorial staff has been enlarged; assurances of active collaboration have been received from the leading members of the profession throughout the entire country; the services of correspondents have been engaged in every large centre of professional activity throughout the world, and a larger reportorial corps has been organized, so that nothing may be lost, whether in the sphere of clinical observation and experience, original thought, or prompt announcement of improvements and discoveries in the medical sciences wherever originating.

For further details as to the plan of the WEEKLY "NEWS" and its terms to subscribers we refer to the prospectus of the publishers, and to the forthcoming January number itself, which will be shortly issued, and a copy of which will be duly laid before each of our readers. We will only add that a design so extensive, and so much in advance of anything that has hitherto been attempted for the service of the medical public, can only be rendered permanent by commensurate support on the part of the profession—a support very far beyond that hitherto conferred on even the most successful of our medical periodicals. To aid in obtaining this the publishers feel that they can rely upon their old subscribers, not only in view of the friendly association created by prolonged intercourse, but

also from the conviction that the wider the circulation of the WEEKLY NEWS, the more perfectly it will be enabled to discharge the functions which it will assume, of a medical newspaper indispensable to all who desire to keep themselves abreast of the progress of medical knowledge.

When the NEWS was started, the population of the United States was less than nineteen millions. We now number fifty millions, with five millions more among our Canadian neighbors—in all fifty-five millions of the most active, intelligent, and progressive race among men. With the wants of such a population to be supplied, the conductors of the WEEKLY NEWS feel that there must be an opportunity for establishing a medical journal on a scale not heretofore attempted, and it will be their earnest effort to fully discharge in every way the very serious responsibilities of the task which they have undertaken.

Ovariectomy under "Modified Listerism."—Dr. GEO. GRANVILLE BANTOCK, in the *Lancet* for Sept. 17, 1881, describes his present method of performing ovariectomy. By the term "Modified Listerism," he means that all the manipulatory details of "Listerism" are followed during the operation, but for the spray, etc., plain water is used instead of what was supposed to be a germicide solution of carbolic acid. The instruments are kept covered in trays with warm water, the hands and sponges are washed with the same, and a spray is made to play over, but not upon the abdomen. Particular attention is drawn to the mode of using the spray. Previous to October last it was directed upon the abdomen from the right front, so that whenever the parietes were lifted up the cold acid vapour was forced into the cavity from a distance of about four feet. The author thinks that this continuous blast of spray, passing freely as it did over all the parts exposed, produced a very decided cooling effect. The powers of the patient were thus inevitably depressed, and an unnecessary and injurious amount of carbolic acid was thrown upon the peritoneum. Now, following the example of Dr. Keith, the spray producer is placed at a distance of eight or ten feet behind and to the left of the patient, so that the spray passes over, but does not fall upon the field of operation, except in very minute quantity, and without any cooling effect. In this way the peritoneal cavity, in sponging out or looking for bleeding points, is left untainted, and the patient is not chilled. The spray is never used for dressing after the operation, even in drainage cases.

It may be in the recollection of some that at the time of reading of the author's paper before the Royal Medical and Chirurgical Society, it was stated that he had already reduced the carbolic solution to 1 in 100, and intimated that in consequence of the improved results obtained, he should probably dispense altogether with the phenol. After employing this solution in twenty cases, with only two deaths—one from shock and the other from acute uræmia—and with a diminished pyrexia among the recoveries, two ovariectomies were performed and a combined oöphorectomy and hysterectomy with a further dilution of the solutions to 1 in 150. These cases proving still more clearly that the motive was in the right direction, he finally threw aside all the acid, and resorted to the pure water method now followed with apparently equally good results.

Early Experiments in Bovine Inoculation.—It is generally supposed that the attempt to prevent the contagious diseases of animals by prophylactic inoculation, after the manner of vaccination, is entirely a result of the latest development of

pathological science. M. Bouley, however, at a recent meeting of the Académie de Médecine, pointed out that this is an error. In 1852 a similar attempt was made in Holland. The experiments were designed to confer immunity against the contagious pleuro-pneumonia, the infectious nature of which, and the protection conferred by an attack, however mild, were pointed out in 1850 by a French Commission appointed at the suggestion of M. J. B. Dumas. The Dutch experiments, however, failed completely, probably in consequence of the mode of inoculation. The place selected was the loose skin below the neck, where the subcutaneous tissue is abundant. When the virus of pleuro-pneumonia is inoculated into such loose cellular tissue, it causes a rapid inflammatory infiltration of such intensity that gangrene and death almost certainly ensue. If, however, the inoculation is made in a situation in which the subcutaneous cellular tissue is dense and scanty, the local effects are slight; the animals escape the immediate results of the inoculation, and acquire the desired immunity. This was recognized a little later by a Dutch observer, Willems de Starrett, who chose the root of the tail as the place of inoculation. Of sixteen oxen inoculated in the throat, twelve died from the local process. Of sixteen others which were inoculated on the tail, all survived; and in all subsequent inoculation in the neck had no effect.—*Lancet*, Oct. 1, 1881.

Hospitals for Contagious Diseases.—The New York Board of Health is about to erect some new hospitals for the reception of contagious diseases upon North Brothers Island, which was granted to the city of New York for the use of the Health Board by the last Legislature. The island is situated in the sound near Port Morris. It has an area of about 13 acres, and is well adapted, both by its size and its isolation, for the sites of the proposed hospitals. One of these, which will be exclusively for smallpox cases, will be erected on the northern shore of the island. It will be of brick, and two stories in height. Other hospitals will be built for patients suffering from typhus fever, diphtheria, and scarlet fever, after the island has been provided with a sea-wall and properly graded. \$40,000 have been appropriated for these improvements, but much more will be required. It is hoped that the smallpox hospital will be completed early in the spring of 1882. As soon as the new hospitals are finished, the Riverside Hospital on Blackwell's Island will be abandoned. The Health Board has recently purchased a swift and stanch steam-launch, which is used to convey cases of contagious diseases to the Riverside Hospital, and to carry those who die from such diseases to their burial-place on Hart's Island.

Rules for Authors.—Dr. BILLINGS, in his able, practical, and witty address before the London Congress, laid down the following cardinal rules for authors in the preparation of journal articles, which we heartily endorse:—

1. Have something to say.
2. Say it.
3. Stop as soon as you have said it.
4. Give the paper a proper title.

The Laryngological Congress.—At a meeting of the sub-section for the Diseases of the Throat of the International Medical Congress, the following resolution, moved by Professor Schnitzler, of Vienna, was carried unanimously: "That, opportunity having now been afforded for the first time to laryngology to show its capabilities at an International Medical Congress, and its place amongst the recognized specialties being now fully secured, a repetition of isolated Laryngological Congresses is the less required; and that it is therefore desirable to abandon the plan adopted at the first Laryngological Congress held at Milan last year of holding a second meeting next year at Paris." Although the Section and the

Congress are not the same bodies, and a resolution of one is not binding on the other, it is evident, that, as this resolution was carried by a meeting at which nearly all the leading laryngologists were present, the special Congress is practically merged in the International Medical Congress.—*Lancet*, Sept. 24, 1881.

Health of New York.—The sanitary condition of the city is not so satisfactory at the present time as it was during the months of September and October. During the four weeks ending November 19, there were 2655 deaths. During the same period there were 484 cases of scarlet fever as contrasted with 320 in August and 259 in September. 70 cases of variola were reported, against 75 in August and 46 in September. The number of rubella cases for the corresponding weeks was 77, instead of 96 and 36, which were the numbers, respectively, for August and September. On the other hand, diphtheria diminished from 355 in August and 276 in September, to 270 during the period in question. The case of supposed typhus fever, reported to have occurred in October, was discovered at the autopsy, conducted under the supervision of one of the Health Commissioners, not to have been a case of that disease. No genuine cases of typhus have been observed in New York since August 27. Nearly all the proprietors of factories at Hunter's point have adopted methods of manufacture which involve a minimum pollution of the atmosphere. The odours emanating from that quarter are consequently much less penetrating and offensive than formerly.

Listerism at Montpellier.—In a clinical lecture, delivered by Prof. DUBREUIL at the St. Eloi Hospital, Montpellier, on a case of amputation (*Gaz. Méd.*, September 17), he observed: "Here we are working with bad surroundings, for we have to complain alike of the faulty construction of our wards, of the unsuitable manner in which they are kept, and of the defective services of the subaltern attendants, who are insufficiently looked after. So that, prior to the adoption of Lister's method, the results of our operations were detestable; but, thanks be to God and to Lister, all this is now changed, and death after amputation has now become a rare exception, while formerly it was the rule. You observe that I rigorously follow out the precepts of the antiseptic method, for I really cannot understand that mania of some surgeons, who will persist in modifying the precepts of the master, even at the risk of compromising the results. As for me, I follow them out literally, and I declare to you that, in my eyes, the surgeon who at the present time does not adopt the antiseptic method commits an act of criminal folly and odious inhumanity."—*Med. Times and Gaz.*, Oct. 1, 1881.

A Solvent for Quinia Sulphate.—Dr. R. C. KENNER, of Batesville, Ark., recommends (*Louisville Med. News*, Nov. 5, 1881) the solution of quinia in sweet spirit of nitre, in the proportion of twenty grains of the salt to the ounce of the solvent, in cases where there is inability to swallow pills.

The New Manhattan Eye and Ear Hospital, at the corner of Park Avenue and Forty-first Street, was completed on the first of October. It is substantially constructed of red brick with brown-stone trimmings. It has a depth of 100 feet on Forty-first Street, and a frontage of 60 feet on Park Avenue. The walls of the entrance hall, the passages, and the staircase walls are of red brick. The two lower floors are built of brick arches and iron beams, which are covered with ornamental tiling. Out-door patients will be received in the basement and the first story. The second and third stories contain wards and private rooms for the accommodation of patients requiring treatment in the hospital. The capacity of these two floors will be about 80. The fourth floor contains two

wards and some private bed-rooms. The kitchen is also located upon the fourth floor. An amphitheatre is situated in the second story, and there is a dining-room on each floor. The engine- and boiler-room, and also the closets, are in a separate building, entirely disconnected from the hospital proper. The buildings will be heated by steam, well lighted with gas, thoroughly ventilated, and provided with three large elevators. There are three broad oaken staircases. The cost of the hospital will be about \$120,000.

A Case of Recovery after prolonged Immersion.—Mr. CHAS. POPE gives an account in the *Lancet* for Oct. 1st, of a man who recovered after from twelve to fifteen minutes immersion in water. He was held tightly jammed against a wall by some weight which had capsized his boat, and the reporter attributes his recovery to the fact that this mechanical compression interfered with respiration and thus prevented the filling of the lungs with water.

Deliquescent Salts in Street Watering.—The observations of M. Miquel on the constant presence of bacteria—septic, if not pathogenic at all times—in the dust of towns, have recalled attention to the question of the expediency of adding deliquescent salts (if also germicidal, so much the better) to the water used for laying the dust in streets. The idea is not new, the experiment having been made at different times in Glasgow, Paris, and elsewhere, but abandoned for reasons with which we are unacquainted. M. Houzeau, from four years' experience at Rouen, finds that the addition of calcic chloride actually reduces the cost of watering by one-third; for while, under the old system, the operation had to be repeated four times a day, a single watering now sufficed for not less than five or six. The solution employed was the waste liquor from the manufactories of pyroligneous acid, containing, besides calcium chloride, notable quantities of iron and volatile tarry matters also of value as antiseptics. The only reason for its abandonment at Rouen was that improvements in the manufacture of the acid so reduced the strength of the residual liquor that it could no longer be used with advantage commercially. But if the sanitary benefit as well as the comfort of preventing the dispersion of dust were fully realized, no doubt other sources of calcium chloride with the accompanying tar products—as, for example, the manufacture of ammonia from gas liquor—could be found, which would not materially, if at all, increase the cost of street-watering.—*Med. Times and Gaz.*, Oct. 15, 1881.

The Bressa Prize.—The Royal Academy of Science of Turin announces that a prize of 12,000 lire (£480), founded by the late Dr. C. A. Bressa, will be given to the competitor who shall, in the opinion of the Academy, have, during the four years 1879-82, made the most important and useful discovery, or produced the best work, in physical and experimental science, natural history, pure and applied mathematics, chemistry, physiology, or pathology, not excluding geology, history, geography, and statistics. Scientific men and inventors of all nations are invited to compete; the only persons excluded being the members of the Academy.—*British Med. Journal*, Oct. 22, 1881.

OBITUARY RECORD.—At his residence near Philadelphia, on the 31st of October, 1881, WILLIAM FURNESS JENKS, M.D., aged 39 years.

The death of Dr. Jenks finished a life which a few years ago was full of promise. Educated at Harvard, he received his medical degree from the University of Pennsylvania in 1866, and after a term of service as Resident Physician in the Philadelphia Hospital he studied obstetrics and gynecology in the special schools

of Berlin, Vienna, London, and Edinburgh. In 1870 he began the practice of his profession in Philadelphia, and lost no time in finding in dispensary service the opportunity of acquiring a practical knowledge of the sciences which he had so carefully studied, and for three years gave a course of practical obstetrics illustrated by operations on the cadaver. For only a few years, however, was he able to continue his work. In the autumn of 1874, failing health compelled him to pass the winter in Florida. On his return, he made an effort to resume work, but was soon forced to give up, and again seek in a foreign climate the health refused him in his own. From this time his professional labours were over, for he saw that the only hope of prolonging his life was in the entire abandonment of all work. For a few years his search for health was partially successful, and he lived in comparative comfort until last October, when after a short confinement in bed he quietly passed away.

Breaking down almost at the beginning of his professional life, Dr. Jenks left but little behind him by which he could be judged, and the full measure of our loss properly estimated. His exhaustive review of Schröder,¹ and the paper on "Sarcomatous Growths of the Uterus,"² bear, however, sufficient evidence of the extent of his knowledge, and of the close analytical character of his mind. A pupil of Sir James Y. Simpson, he regarded the obstetric forceps as extractors, rather than compressors, and after persistent efforts, succeeded in introducing the Simpson Forceps into Philadelphia obstetric practice. A skilful pathologist, he, at the time of his first illness, was preparing a course of lectures on uterine and ovarian pathology for the College of Physicians. Had he been able to complete this course, it would have been a very valuable contribution to this branch of medical science. It, however, was not to be, and when he died, almost nothing remained to his friends, save the recollection of the brilliancy of his genius, his patient industry, and the sparkling geniality of his manner.

— At his residence near Dublin, on Oct. 21, ALFRED MCCINTOCK, M.D., LL.D., F.R.C.S.I., who is well known in this country as the author of "Clinical Memoirs on the Diseases of Women," and as the editor of Smellie's Midwifery, for the New Sydenham Society.

— At Paris, October 27, Professor JEAN BAPTISTE BOUILLAUD. Born in 1795, Bouillaud was a young and earnest student when the discovery of auscultation by Laennec gave him the means of making the discovery which will always be connected with his name—the relationship between rheumatism and cardiac disease. He was the author of the word *endocarditis*, and gave an excellent description of the anatomical changes which accompany that disease. In 1831, he obtained, by open competition, the chair of Clinical Medicine at La Charité, where he was an ardent teacher of the doctrine of Broussais, that all diseases were inflammations, and required treatment by bleeding. In 1842 he was returned to the Assembly by his native town, Angoulême, and after the revolution of '48, he was promoted to the post of Dean of the Medical Faculty. He was a member of the Institute and of the Academy of Sciences.

— At Glasgow, on the 31st of October, DAVID FOULIS, M.D., aged thirty-five. Dr. Foulis was a rising specialist in diseases of the throat, his wide reputation having been achieved by his performing for the first time in England, the operation for the extirpation of the larynx. Dr. Foulis died of diphtheria contracted from a patient on whom he had performed tracheotomy a few days before.

¹ American Journal Med. Sciences, Oct. 1872.

² Amer. Supplement to the Obs. Journ. of G. B. and I., Oct. and Nov. 1873.

INDEX.

- Abortion as a therapeutic measure, 182
 Abscess, antiseptic treatment of, 678
 Accidents, rare, 753
 Ainhum, 543
 Air passages, coin in, 680
 Albert, resection of patella, 43
 Albuminoid degeneration, determination of, 487
 Albuminuria, diphtheritic, 223
 ———, pathogenesis of, 675
 ———, transient, 405
 Alkaloids, cadaveric, 562
 Allgemeine Wiener Medizinische Zeitung, 127
 Amann, treatment of chronic metritis, 682
 Amblyopia, cerebral and hemiopia, 541
 American consul, banquet to, 319
 ——— Laryngological Association, 437
 ——— Medical Association, 373
 ———, prize essay of, 640
 ——— Medical College Association, 381
 ——— Ophthalmological Society, 575
 ——— Surgical Association, 381, 504
 Ammonia in chloroform poisoning, 563
 Amyloid kidney, 259
 Anæmia, progressive pernicious, 541
 Anæsthesia by application of chloroform to the skin, 17, 84, 144
 Anæsthetics, action on heart, 726
 Aneurism, aortic, simultaneous ligature of carotid and subclavian arteries, 234
 ——— of innominate, ligature of carotid and subclavian with tendon ligature, 364
 ———, treatment of, with the elastic bandage, 425, 750
 Angina, neuralgic character of, 536
 Annuschat, treatment of diphtheria, 152
 Anrep, peripheral temperature in lung diseases, 670
 Antidotes, 68
 Anti-vivisection Bill, 251
 Anus, mucous membrane of, 142
 Aortic insufficiency with triple second sound, 287
 Apoplexy, stertorous breathing in, 540
 Armangue, Cremaster as an æsthesiometer, 276
 Arnaud, catgut ligatures, 167
 Arrow wounds, 488
 Arsenic, detection of, in wall papers, 757
 Arteries, progressive painful inflammation of, 482
 Arthritis diathesis, 76
 Arthritis, gonorrhœal, 751
 Arytenoid cartilage, œdema of, 351
 Ascites, abdominal, faradization in, 34
 Asmuth, rupture of the bladder, 549
 Atheroma, pathology of, 340
 Atrophy, neurotic, 26
 ———, progressive muscular, 411
 Atropia, antagonism of, 211
 ——— in menorrhagia and hæmoptysis, 47
 ———, poisoning by, 755
 ———, treated with pilocarpine, 307
 ——— in vaseline, 474
 Aural exostoses, removal of, 625
 Auscultation and percussion, 620
 ———, obstetrical, 560
 Authors, rules for, 763
 Axillary aneurism, galvano-puncture in, 720
 Ballet, cortical centre for movements of the face, 17
 Bamberger, transient albuminuria, 405
 Bantock, hyperpyrexia after Listerian ovariectomy, 113
 ———, under modified Listerism, 762
 Bartholow, antagonism of atropia, 211
 ———, galvanism or faradism, 5
 Barwell, ox aorta and catgut ligatures, 298
 Beaumont, pelletierine, valdivine, and cedrine, 616
 Belladonna poisoning treated with pilocarpin, 402
 Bellevue Hospital, 382
 Berthold, nerves of the tympanic cavity, 723
 Berberin, action of, 725
 Betz, nature of the green vomit, 226
 ———, structure of the cortex cerebri, 529
 Beveridge, milk as a cause of disease, 730
 Biliary calculi, hygienic treatment of, 355
 Billings, medical literature, 587
 Billroth, extirpation of pylorus, 232
 ———, rapid lithotomy, 174
 Binz, tannate of quinia in whooping cough, 476
 Bird, treatment of intra-thoracic suppurating hydatid, 551
 Bladder, atony of, 273, 334
 ———, perforating wounds of, 626
 ———, removal of villous growth from, 101
 ———, rupture of, 549

- Bladder, tumor of, 459
 — washing out the, 103
 Blennorrhagia, chlorate of potash in, 295
 Blisters, 397
 Blood-stain, micrometric diagnosis of, 244
 Borax, psoriasis from, 744
 Bosse, treatment of diphtheria, 152
 Bouehut, papaya and papain, 728
 Bouveret, morbid sweating, 290
 Brailley, colour blindness, 498
 Brain disease, organic symptoms of recovery from, 24
 Brakenridge, caffeine as a diuretic, 728
 Breast, bloodless amputation of, 295
 Bressa prize, 765
 Breus, myxoma fibrosum and cystic disease of placenta, 367
 British Medical Association, 697
 Brodhurst, pathology and treatment of genu valgum, 627
 Bronchitis and phthisis, action of certain remedies in, Lauder Brunton, 145
 Brooklyn New Hospital, 264
 Brou injection, 507
 Brown-Séquard, anesthesia by application of chloroform to the skin, 17
 Bruns, use of Martin's elastic bandage, 20
 Bryant, operations for chronic disease in phthisis, 746
 Buboos, aspiration of, 749
 Burekhardt-Merian, scarlet fever as a cause of ear-disease, 36
 Burnier, origin of tubo-ovarian cysts, 756
 Burns, bicarbonate of soda in, 679
 —, causes of death from, 548
 —, thymol in, 477
 Buschmann, extirpation of a large retro-peritoneal fibroma, with adherent kidney and supra-renal body, 100
 Caffein as a diuretic, 727
 Calabar bean in intestinal atony, 288
 Calculi, perineal, 681
 Calculus, biliary, as a cause of intestinal obstruction, 289
 —, scrotal, 749
 Cancer, Chian turpentine in, Morris, 62
 —, mammary, statistics of, 423
 — of the breast and meninges, 549
 — of the cervix complicating pregnancy, 185
 —, tar, soot, and tobacco, 357
 Carbolic acid an antipyretic, 661
 —, poisoning by, 758
 Cardiac disease, 528
 — diseases, treatment of, 673
 Carotid, ligation of, after tonsillotomy, 178
 Cassell's removal of aural exostoses, 625
 Catalepsy, 515
 — with speech-reflexes, 542
 Catalogue of the library of the surgeon-general's office, 247
 Cataract, diabetic, 414
 —, gouty, 168
 —, syphilitic in, 168
 Catgut ligature, 167, 213
 Cedrine, 616
 Cellulitis, pelvic, and the broad ligament, 558
 Chaillé, letter from, 511
 Chancre, destruction of, as an abortive measure, 363, 497
 Charcot, neuro-muscular super excitability in hypnotism, 484
 Charleston, health of, 63, 251
 —, scarlatina in, 573
 —, scarlet fever in, 317, 443
 Chaulmugra oil, 336
 Chicago, health of, 445
 Children, river and sea trips for, 507
 Chloral, eruption produced by, 151
 Chloroform, deaths from, 125, 508
 Cholera infantum, resorcin in, 476
 Chorea and rheumatism, 618
 —, arsenical treatment of, 474
 —, heart symptoms in, 673
 Chorion, cystic degeneration of, with a living fœtus, 181
 Choroid, bacteria in, 231
 Cincinnati, midwifery in, 126
 Circulation in the marrow of bone and cerebral meninges, 141
 Clark, glosso-labial palsy, 485
 Clavicles, fracture of both simultaneously, 314
 Clinical lectures on—
 Amyloid kidney, 259
 Arthritic diathesis, introductory to the study of, 76
 Atypical typhoid fever, 387
 Bladder, tumour of, 459
 Catalepsy, trichinosis and the treatment of pneumonia, 515
 Catarrhal and muscular disorders of the stomach, 707
 Club-foot, treatment of, 67
 Fracture of the patella, 194
 Galvanism, or Faradism, 5
 Insensibility, inter-diagnosis of, from various causes, 12
 Phthisis, treatment of night-sweating of, 451
 Pruritus vulvæ, diagnosis and treatment of, 265
 Puerperal septicæmia, prevention of, 579
 Spine, injuries of, 643
 Skull, punctured wound of, 330
 Treatment of some forms of epilepsy, 204
 Trephining for anomalous convulsive attack, 522
 Trichiniasis, 131
 Tubercular peritonitis in children, 137
 Typhoid fever, treatment of, 323
 Uterus, intramural fibroid of, 392
 Club-foot, treatment of, 67
 Codeia in diabetes mellitus, 467
 Cod-liver oil, administration of, 475
 Cohnstein, dysmenorrhœa membranacea, 243
 —, vaginitis exfoliativa, 243
 Collin, epidemic of hysterio-epilepsy, 28
 College of physicians and surgeons, Baltimore, 250
 College of physicians library, Philadelphia, 126
 Color, sense of, 397
 Color-blindness, 498
 — in Denmark, 230
 —, statistics of, 510
 Celotomy, 294
 Columbian institute, 314

- Compressed air, spinal lesions from, 735
 Coney Island, vitiated sea breezes at, 697
 Congress, International Medical, 64
 Convalescents' Home, 251
 Convulsions, followed by paralysis, 734
 ———, puerperal, pilocarpin in, 561
 Copyright of oral lectures, 371
 Cornea, fatty degeneration of, 358
 Corpus striatum, destruction of, without symptoms, 733
 Cortex cerebri, structure of, 529
 Counter prescribing, 315
 Crédé, nerve-stretching, 34
 Cremation in the United States, 313
 Cremaster as an aesthesiometer, 276
 Critchett, on peritomy, 97
 Crysophanic acid, poisoning by, 687
 Cuboid bone, excision of, Poinset, 44
 Cuignet, fatty degeneration of cornea, 358
 Curcul, action of berberin, 725
 Cystic disease, ovary in, 684
 Cysts, incomplete removal of, 757
 ———, tubo-ovarian, 756
- Da Costa, treatment of night-sweating of phthisis, 451
 ———, trichiniasis, 131
 Darenberg, influence of menstruation on the progress of pulmonary consumption, 159
 Davis-Colley, removal of villous growth from the bladder, 101
 Dengue in Egypt, 281
 Denmark, colour-blindness in, 230
 Dent, innominate aneurism, ligation of carotid and subclavian, 364
 Dentophone, value of, 250
 Dentistry, a triumph of, 316
 Depaul, obstetrical auscultation, 560
 Dermatological Association, American, 637
 Desiccated ox-blood and hæmoglobine, 189
 Diabetes associated with disease of the pancreas, 344
 ———, mellitus, codeia in, 467
 ———, neuralgia in, Worms, 61
 ———, transient, 527
 ———, treated with salicylic acid, 289
 Diabetic coma, epithelial necrosis in, 731
 ———, pathology of, 289
 Dianoux, treatment of detachment of retina, 414
 Diarrhoea in infants, treated by charcoal in milk, 227
 Diaschke, aortic insufficiency and triple second sound, 287
 Digitalis, preparations of, 663
 Diphtheria, antiseptic treatment of, 404
 ———, catarrhal, 282
 ———, in Russia, 535
 ———, nature of infecting agent in, 478
 ———, pathology of, 342
 ———, treatment of, 151
 ———, in children, 362
 ———, with pilocarpin, 344
 ———, turpentine in, 535
 ———, Vidal's lotion for, 536
 Diphtheritic membranes, organism in, 282
 Diseased meats, dangers of, 245
- Doassans, physiological properties of thalictin, 277
 Dogwood, Jamaica, physiological action of, 212
 Doliarin as a remedy for ankylostomum Dubini, 536
 Drainage, rules for, 693
 Draper, intestinal obstruction, 674
 Duncan, J. Matthews, treatment of puerperal diseases, 45
 ———, phlegmasia dolens and lymphatic varix, 430
 Dysentery, treatment of, with cold enemata, 355
 Dysmenorrhœa membranacea, 242, 765
 ———, membranous, 682
 Dyspepsia, cerebral symptoms in, 733
 Dyspnoea, quebracho in, 271
 ———, uræmic, 351
 Dystochia, cervix in, 755
- Ear disease, scarlet fever as a cause of, Burckhardt-Merian, 36
 ———, iodine fumigation of, 448
 ———, some points in the anatomy of, 141
 Ebstein, epithelial necrosis and diabetic coma, 731
 Elastic bandage, use of Martin's, 20
 Electrolysis of vascular tumours, 494
 Eisenberg, changes in the salivary glands in lypssa, 534
 Embryotomy and Cæsarean section, 628
 Emphysema, post mortem, from gastric ulcer, 226
 Empyema, treatment of, 737
 Encephaloid mistaken for aneurism, 296
 Endocarditis, gonorrhœal, 95
 Endolaryngeal operation, first under anæsthesia, 422
 Enteric fever, treatment of, with prolonged lukewarm baths, 480
 Epididymitis, pathology of, 497
 Epilepsy, diagnosis of, from hystero-epilepsy, 154
 ———, treatment of, 204, 541
 Epithelioma of the tongue, 170
 Epstein, jaundice in new-born infants, 163
 Erb, spinal myosis and reflex papillary rigidity, 666
 Erectile tumour, new method of treating, 748
 Erysipelas, carbolic acid in, 97
 Eucalyptus oil as an antiseptic, 84
 Extra-uterine gestation, first case of operation for, 500
 ———, treatment of, 301
 Eye, detection of metallic foreign bodies in by a magnet, Pooley, 36
 Eyelids, transparent cysts of, 358
- Face, movements of cortical centre for, 17
 Faradism, 5
 Ferrand, treatment of vomiting in phthisis, 354
 Ferrier, nerve plexuses of the extremities, 470
 Fever, gastric remittent, 249
 ———, treatment of, in children, 280
 Fibrinuria, a case of acute, 167

- Fibroma, retro-peritoneal, excision of, with adherent kidney and supra-renal body, Buschmann, 100
- Fibromata, enucleation through vagina, 501
- Filaria sanguinis hominis, 742
- Fischer, trephining of the ilium, 295
- Flint, acute articular rheumatism, 207
- , auscultation and percussion, 620
- , catalepsy, trichinosis, and the treatment of pneumonia, 515
- , codeia in diabetes mellitus, 467
- , honours to, 505
- , quebracho in dyspnoea, 271
- , treatment of pneumonia with the wet sheet, 284
- Fœtation, extra- and intra-uterine, abdominal section, 429
- Fontanelles, distance between, an index of size of foetal head, 239
- Food adulterations, 123
- and drugs, adulterations of, 507
- Foot, perforating ulcer of, 628
- Fox, treatment of enteric fever with prolonged lukewarm baths, 480
- Frankel, preparations of digitalis, 663
- Fränkel, the muscles in phthisis, 160
- Frankenhauser, Listerism in midwifery and gynaecology, 107
- Franks, ozæna from retained secretion, 554
- Fräntzel, idiopathic enlargement of the heart, 353
- Frerichs, existence of albumen and sugar in the urine, 676
- Friedenreich, spastic spinal paralysis, 349
- Fritsch, mechanical dilatation of the uterus, 110
- Frommel, operative treatment of cancer of the cervix complicating pregnancy, 185
- , treatment of ruptures of the uterus, 112
- Furbrenger, absorption of mercury, 660
- Galabin, extra- and intra-uterine fœtation, abdominal section, 429
- Galactocoele, 16
- Galvanism, 5
- Galvano-puncture in aneurism of subclavian and axillary arteries, 720
- Gangrene, multiple cutaneous, 386
- of the arm from poisoned wound, amputation and recovery, 237
- Garfield, case of, 631, 699
- Gastrostomy in extra uterine gestation, 304
- in œsophageal stricture, 292
- , serious mishap after, 292
- Gaujot, treatment of floating bodies in the knee, 752
- Gaultheria, poisoning by, 698
- Gee, tubercular peritonitis in children, 137
- Gelsemium as an antipruritic remedy, 145
- Gen, nerve-stretching, 35
- Genu valgum, forcible straining in, 751
- , pathology and treatment of, 627
- Georgia, medical association of, 507
- Germ theory, 601
- German pharmacopœia, revision of, 312
- Glaister, poisoning by crysophanic acid, 687
- Glaucoma, blindness after, 557
- , pathology of, 360
- Glycine, poisoning by, 308
- Goldammer, puncture in pleural effusions, 29
- Gould, antiseptic osteotomy of the tibia, fatal carbolic intoxication, 492
- , atony of bladder, 273
- , galatocoele, 16
- Graduates in medicine, 1881, 248, 316
- Grancher, tuberculosis and serofula, 399
- Gross surgical prize, 125
- Guérin, the broad ligament and pelvic cellulitis, 558
- Guttmann, treatment of diphtheria, 151
- Guy's Hospital, 189, 319
- Gynecological, a private, hospital, 317
- Society, American, 696
- Hæmothorax, traumatic, 30
- Hajek, post-scarlatinal nephritis, 228
- Hamilton, fracture of the patella, 195
- Hardie, sponge pressure as a surgical dressing, 715
- Harnack, therapeutic use of pilocarpine, 338
- Harris, the ovary in cystic disease, 684
- Hart, milk as a spreader of symptomatic diseases, 629
- Hay fever, 479
- Healing of tissues in serous cavities, 295
- Health legislation, recent, 510
- Heart, idiopathic enlargement of, 353
- Heart-murmur heard at a distance from chest-wall, 31
- Heat dyspnoea, 659
- Heath, gangrene of the arm, 237
- Hemiglossitis, case of, 98
- Hemorrhagic diathesis in relation to leucæmia and allied conditions, 23
- Hepatotomy for hydatids, 550
- Hérard, influence of hydro-pneumothorax on tuberculization, 671
- Hernia, results of operations for the radical cure of, 425
- Heschl, calcification of spinal dura mater, 275
- Hill, tumour of bladder, 459
- Horses, epidemic among, 318
- Hospital managers, a good example for, 319
- Hospitals for contagious diseases, 763
- Hulke, punctured wound of skull, 330
- , trephining for anomalous convulsive attacks, 522
- Hunt, injuries of the spine, 643
- Hutchinson, gangrenous symptoms with varicella and vaccination, 744
- , introductory to the study of arthritic diathesis, 76
- Hydatid, intra-thoracic suppurating, treatment of, 551
- Hydrofluoric acid, accident with, 759
- Hydrophobic saliva, inoculation with, 341
- Hygiene, international exhibition of, 127
- Hyperpyrexia after Listerian ovariectomy, Bantock, 113
- Hypnotism, neuro-muscular hyper-excitability in, 484
- Hysterical spinal affection, cured by Corrigan's iron, 140
- Hystero-epilepsy, 207
- , epidemic, 23

- Ilium, trephining of, 295
 ———, for pelvic abscess, 494
 Illinois State Medical Society, 445
 Impure ice as a cause of intestinal disease, 309
 Index Medicus, 255
 Indiana State Board of Health, 247
 ——— Medical Society, 445
 Inebriates, new home for, 445
 Inoculation, bovine, 762
 Insensibility from various causes, inter-diagnosis of, 12
 Insolation, treatment with shower-bath, 469
 International Medical Congress, 127, 192, 253, 314, 443, 565, 569, 635, 640
 ——— Pharmacopœia, 695
 ——— Sanitary Conference, 247
 Intestinal obstruction, 674
 ——— from a biliary calculus, 289
 ——— occlusion cured by electricity, 95
 Intraventricular communication, 276
 Iodoform in rheumatism and neuralgia, 733
 ——— tuberculosis of bones and joints, 426
 Iron as a poison, 689
 ———, hypodermic injection of, 729
 Jackson, eye symptoms in locomotor ataxy, 155
 ———, symptoms of recovery from organic brain disease, 24
 Jaundice in new-born infants, 163
 Jefferson Medical College, 447
 Jenks, Dr. Wm. F., obituary notice of, 765
 Joints, resection in tuberculous disease of, 553
 ——— of, and antiseptic dressings, 427
 Kansas State Medical Society, 588
 Kast, lead paralysis, 26
 Kentucky, Barren County Medical Society, 575
 ——— State Medical Society, 318
 Kidney, amyloid degeneration, 675
 ———, double cystic, with renal calculi, 96
 ———, removal of, for nephrolithiasis, 496
 Kilbourne, arrow wound, 488
 King's County Lunatic Asylum, 697
 Knee, Barton's operation for osseous ankylosis of, Kilgariff, 43
 ———, treatment of floating bodies in, 652
 Knee-joint, three cases of abscess of, in children, 234
 Knee-reflex, disappearance and localization of, 347
 Knies, pathology of glaucoma, 360
 Knight, a medical, 254
 Koerte, cases of tracheotomy, 172
 ———, treatment of diphtheria in children, 362
 Kölliker, structure of the mammary gland, 531
 Koumiss in prolonged vomiting, 225
 Kraske, serious mishap after gastrotomy, 292
 Krause, atrophic lines on the abdomen in pregnancy, 209
 Kwass, merits of, 662
 Lanceroux, diabetes associated with disease of the pancreas, 344
 Langenbeck, 63
 Langenbuch, nerve-stretching in disease of spinal cord, 735
 ——— locomotor ataxy, 346
 ———, supra-pubic lithotomy, 545
 Laryngological Congress, 317, 763
 Larynx, anæsthesia of, by a new method, Rossbach, 98
 ———, extirpation of, for malignant disease, 421
 ———, new method of producing anæsthesia, 665
 Lauder-Brunton, action and uses of certain remedies in bronchitis and phthisis, 145
 Lead-colic, probable cause of, 369
 Lead, elimination of, by iodide of potassium, 122
 ———, paralysis, ergot in, 736
 Leube and Fleischer, Leukæmia, 403
 Leukæmia, 403
 Lewin, action of tannin, 398
 Library of the College of Physicians, Philadelphia, 252
 ——— of the N. Y. Academy of Medicine, 319
 Lichen ruber cured by arsenic, 291
 Ligatures, ox aorta and catgut, 298
 Light, sense of, 397
 Liquor amnii, origin of, 659
 ———, source of, 335
 Lister, 62
 ———, catgut ligature, 212
 ———, ox-aorta and catgut ligatures, 298
 ———, prize awarded to, 318
 Listerism, 230
 ——— at Montpellier, 764
 ——— in gynecology and midwifery, Frankenhauer, 107
 ——— in Japan, 191
 ——— in Paris, 125
 Literary notes, 128, 255, 698
 ——— piracy, 319
 Lithotomy, supra-pubic, 234, 545
 Lithotrite, accident to, 101
 Lithotritry, rapid, 174
 Litten, medical ophthalmoscopy, 345
 Litzmann, indications for gastrotomy in extra-uterine gestation, 304
 ———, spinal paralysis in new-born children, 241
 Liver, hydatid tumour of, 741
 ———, movable, 335
 ———, steatosis of, 411
 ———, treatment of abscess of, 162
 Locomotor ataxy, cardiac lesions in, 483
 ———, early stage of, 224
 ———, eye symptoms in, 155
 ———, nerve-stretching, 88, 346
 London Congress, honours to the secretary-general of, 639
 Long Island College Hospital, 506
 Longstreth, catarrhal and muscular disorders of the stomach, 707
 Louisiana State Medical Association, 192
 ——— Society, 447
 Lung diseases, peripheral temperature in, 670

- Lungs, heart, and bloodvessels, reflex relation between, 469
 Lupus, treatment of, by scraping, 366
 Lurk, treatment of extra-uterine gestation, 301
 Lympho-sarcoma, malignant, arsenic in, 678
 Lyssa, changes in salivary glands in, 534

 MacCormac, ununited fracture of the olecranon treated by suture, 491
 Mackie, dengue in Egypt, 281
 Mackenzie, filaria sanguinis hominis, 742
 Macleod, left-sided convulsions followed by paralysis, 734
 Maize and maizenic acid, 143
 Malpraxis in Belgium, 510
 Mammary abscess, treatment of, 184
 — fibroid, recurrent, 658
 — gland, cancers of, 625
 —, structure of, 531
 Manhattan Eye and Ear Hospital, 764
 Manson, eprue, 402
 Martin, pathology of atheroma, 340
 Maryland, medical and chirurgical faculty of, 446
 McMurtry, treatment of typhoid fever, 323
 Meat, new method of preserving, Artimini, 61
 —, infected, 437
 Mediastinal tumours, symptomatology of, 547
 Medical editors, association of, 444
 — education, retrogression in, 252
 — experts, 312
 — journalism, statistics of, 192
 — jurisprudence, influence of anti-septic method on, 317
 — literature, 587
 — service, night, 698
 Medicine, public address on, 651
 Ménière's disease, 407
 Mercury, absorption of, 660
 Metritis, chronic, treatment of, 682
 Meyer, therapeutic use of pilocarpin, 338
 Mikulicz, iodoform as a dressing in tuberculosis of bones and joints, 426
 Milk as a carrier of disease, 59
 — cause of disease, 730
 — spreader of zymotic diseases, 629
 —, effect of drugs on, 615
 —, raid on, 695
 Milne-Edwards, 128
 Mission, sick children's, 445
 Mitral insufficiency, theory of, 537
 Moriarty, pulsating encephaloid mistaken for aneurism, 296
 Morris, Henry, nephro-lithotomy, 38
 —, intra-mural fibroid of the uterus, 392
 Morton, Thos. G., treatment of club-foot, 67
 Mosler, dangers of peritoneal transfusion, 664
 —, hemorrhagic diathesis in relation to leukæmia, 22
 Müller, early stage of locomotor ataxy, 224
 —, Porro operation, a successful case, 501

 Munificent gifts, 318
 Myxoma fibrosum, and cystic disease of placenta, 367

 National Board of Health, 247
 Navratil, thyrotomy in a child aged eighteen months, 99
 Nephritis, chronic, 657
 —, diagnosis of different forms of, 227
 —, post-scarlatinal, 228
 Nephro-lithotomy, Morris, 38
 Nerve-plexuses of the extremities, 470
 Nerve stretching, 34
 — in diseases of the spinal cord, 735
 Nerves, secondary suture of, 357
 Nervous diseases, period of latent muscular excitation in, 666
 Neuralgia, aconite in, 473
 —, trigeminal, compression of carotid in, 542
 Neuro-ganglioma, peripheral, 104
 Neuromata, enucleation of, 496
 New Hampshire Medical Society, 507
 New York Academy of Medicine, Library, 126, 447
 —, bad odours of, 248, 317, 383
 — College of Physicians and Surgeons, 505
 — death rate, 505
 — health commission, 448
 —, health of, 250, 383, 444, 504, 574, 638, 696, 764
 — Institution for care of infants and children, 506, 575
 — Medical Mission, 505
 — physicians at the International Congress, 575
 —, prosecution of unregistered practitioners in, 248, 383
 —, regulation of medical practice in, 639
 — sick poor, 575
 — State Health Board, 639, 640
 — Medical Society, 248, 126
 —, medical law of, 313
 — street cleaning agitation, 383
 — University, 575
 —, working of registration law, 506
 Nicotine poisoning, 689
 Night medical service, 318, 384
 Nostrils, introduction of food by, 662
 Noxious odours, abatement of, 640
 Nursery, sea-side, 317
 Nurses, training school for, 510
 —, in Washington, 253, 314

 Obituary record, 256, 320, 384, 448, 640, 699, 765
 Œsophagism, 100
 Œsophagus, gastrotomy in stricture of, 681
 —, varix of, 537
 Ohio State Medical Society, 507
 Olecranon, ununited fracture of, treated by suture, 491
 Oleomargarine redivivus, 698
 Ollier, resections of joints and antiseptic dressings, 427

- Ophthalmia neonatorum, prophylactic treatment of, 413
 Ophthalmoscope in intra-cranial lesions, 624
 Ophthalmoscopy, medical, 345
 Optic nerve, a spinal root of, Stilling, 83
 Orchitis, treatment of, 364
 Osler, heart-murmurs heard at a distance from the chest wall, 31
 Otis, tribute to the memory of, 638
 Ovarian compression, therapeutics of, 307
 Ovaries, removal of, for insanity, 629
 Ovariectomy and pregnancy, 433
 —, antiseptic, 686
 —, during pregnancy, 191
 —, parotitis as a complication of, 669
 —, under modified Listerism, 762
 Ovary, a triple, Keppeler, 62
 Owen, knee-joint abscess in children, 234
 Ozæna from retained secretion, 554

 Page, prevention of scarlet fever, 689
 Palsy, glosso-labial, 485
 Pancreas, primary cancer of, 249
 Papaya and papain, 728
 Paralyzes, pseudo-syphilitic, 667
 Paralysis from apoplexy of the medulla oblongata, 486
 —, lead, 26
 —, of hands and feet from nerve diseases, 407
 —, temporary, after epilepsy, 486
 Parrot, aphthous vulvitis and gangrene of the vulva in children, 431
 —, desquamative syphilis of the tongue, 415
 Pasteur, germ theory, 601
 Patella, fractures of, 194
 —, resection of, Albert, 43
 Patellæ, fracture of both, Beauvais, 61
 Pearce, atony of bladder, 334
 Pelletierine, 616
 Pelvic articulations, mobility of, 754
 Pennsylvania State Medical Society, 439
 Peppingskola, ovariectomy in pregnancy, 433
 Pepsine as a solvent in obstruction of bladder, 534
 Pericarditis, pathogeny of, 33
 —, tuberculous, 483
 Pericardium, incision of, 740
 Peripheral neuroganglions, 104
 Peritomy, 97
 Peritoneal transfusion of blood, 191, 279
 —, dangers of, 664
 Peritonitis, tubercular, 137
 Philanthropy, practical, 506
 Phlegmasia dolens, and lymphatic varix, 430
 Phthisis, operation for chronic disease in, 746
 —, production of, by inhalation, Tappiner, 93
 —, the muscles in, 160
 —, treatment of at high altitudes, 538
 —, of night sweating of, 451
 —, of vomiting in, 354
 Physicians' Mutual Aid Society of New York, 318

 Pilocarpine, 616
 —, in bronchitis and pleurisy, 284
 —, skin diseases, 86
 —, therapeutic use of, 338
 Pink eye, 697
 Placenta, cystic disease of, 367
 Plantaris muscle, rupture of, 750
 Plaster-of-Paris jackets in the treatment of fractures of the spine, 105
 Pleural effusions, clinical history of, 89
 —, puncture in, 29
 —, sudden death in, 91
 Pleurisy, treatment of, in children, 351
 —, typhoid, 670
 Plumbers, registration of, 445
 Plumbing, defective, 691
 —, inspection of, 314
 —, rules for, 693
 Pneumonia, croupous, iodine in, 411
 —, passive, 482
 —, retarded signs of, 92
 —, treatment of, 514
 —, with wet sheet, 284
 Pneumothorax and empyema, 540
 Poisons, antagonism of, 726
 Polypi, aural, treatment of, 169
 Pooley, nerve-stretching, 35
 Potassium bichromate, poisoning by, 563
 Pousson and Lalesque, dislocation of the spine, 178
 Pregnancy and acute infectious diseases, 239
 —, atrophic lines on the abdomen in, 209
 —, extra-uterine, 247
 —, varices in, 104
 Presbyterian Hospital, N. Y., officers of, 316
 Priestley, induction of abortion as a therapeutic measure, 182
 Professor, a veteran, 68
 Proprietary medicines, 254
 Prosecution of unqualified practitioners, 383, 448
 Pruritus vulvæ, 265
 Pseudoleukæmia, arsenic in, 342
 Psoriasis, treatment of, by baths of sublimate, 356
 Puerperal fevers, treatment of, Duncan, 45
 —, septicæmia, prevention of, 579
 Pulmonary affections, antiseptic inhalations in, 544
 —, consumption, influence of menstruation on the progress of, 159
 Pulsus bigeminus, 354
 Pustules, malignant, 238
 Pyæmia, puerperal, softening of the brain in, from micrococci, 487
 Pylorus, extirpation of, 232

 Quebracho in dyspnoea, 271
 Quina, manufacture of, 510
 —, sulphate, a solvent for, 764

 Ramskill, treatment of some forms of epilepsy, 204
 Ransford, galvanopuncture in aneurism of subclavian and axillary arteries, 720

- Registration law of Pennsylvania, 503
 Regulation that does not regulate, 575
 Relapsing fevers, eye and ear disease in, 87
 Resignation, 698
 Retina, pilocarpine in detachment of, 624
 —, treatment of detachment of, 414
 —, vessels of, 209
 Re-vaccination, need of, 543
 Rheumatic fever, aconite in, 473
 — in children, 283
 Rheumatism, acute articular, treated with salicin and alkalies, 207, 467
 —, cerebral, cold baths in, 23
 Rhinitis and plugging of the nose, 496
 Richardson, micrometric diagnosis of blood stains, 244
 Richet, electrical tetanus, 724
 Rigor mortis, 142, 190
 Ringer, action of anesthetics on the heart, 726
 Rochard, treatment of abscess of the liver, 162
 Rosenstein, incision, of the pericardium, 740
 Rossbach, anæsthesia of the larynx by a new method, 98
 Runge, pregnancy and the acute infectious diseases, 239
- Sacrum, fracture of, 106
 Salicin in acute articular rheumatism, 467
 Saliva, inoculation with, 341
 Sanitaria, new, 62
 Sanitarium for children at Mott Haven, N. Y., 506
 Sanitary convention, 317
 Scarletina and measles combined, a case of, 87
 —, desquamation and infection following, 537
 Scarlet fever, prevention of, 689
 Schultz, unilateral injury of spinal cord, 358
 Sciatica caused by aneurism of the abdominal aorta, 96
 Scrofula and tuberculosis, 399
 Sea-sickness, ergot in, 508
 Sea-side sanitaria, 576
 — sanitarium, 506
 Seaweed as a substitute for jam, 508
 Short-sight in relation to education, 187
 Shradz, presentation to, 505
 Simon, address on public medicine, 651
 Skin affections, naphtha oil in, 533
 — diseases, pilocarpine in, 86
 Skoda, death of, 511
 Skull, punctured wound of, 330
 Slander, law of, as applicable to physicians, 118
 Smart, food adulterations, 123
 Smith, cleanliness as a preventive of puerperal septicæmia, 579
 —, J. Lewis, treatment of pleurisy in children, 351
 Société Médico-Psychologique of Paris, 191
 Souffle, cephalic, in the adult, 668
 Southey, inter-diagnosis of insensibility of, from various causes, 12
- Spinal cord, unilateral injury of, 358
 — dura mater, calcification of, 275
 — myosis and reflex pupillary rigidity, 666
 — paralysis in the newly born, 89, 241
 — of children, histology of, 411
 —, spastic, 349
 Spine, dislocation of, 178
 —, injuries of, 643
 Spleen, passive congestion of, 161
 —, removal of hypertrophied, 509
 Sponge pressure as a surgical dressing, 715
 Spray question, 278
 Sprue, 402
 Squire, pilocarpine, 615
 State Medical Societies' meetings, 254, 319
 Steffen, treatment of fever in children, 280
 Sterility, treatment of, with alkalies, Charrier, 57
 Stewart, paralysis of hands and feet from diseases of nerves, 407
 Stoffeln, epilepsy and its diagnosis from hystero-epilepsy, 154
 Stokes, excision of the tongue, 417
 Stomach, catarrhal and muscular disorders of, 707
 —, resection of, 511
 —, washing out for gastric catarrh, 741
 Street watering, deliquescent salts for, 765
 Stricture, spasmodic, Zeissl, 40
 Strychnia, localization of, 307
 Stumps, neuritis in, 495
 Subclavian aneurism, galvano-puncture in, 720
 Subscribers, address to, 761
 Summer cottage charity, 575
 — home of Children's Aid Society, 506
 — resorts, sanitary conditions of, 566
 Surgery, address on the changes in, 605
 Suture of nerves and tendons, 358
 —, secondary, 357
 Sweating in consumptives, import of, 286
 —, morbid, 290
 — sickness, epidemic of, 404
 Syphilis as a cause of locomotor ataxy, 619
 —, discovery of micrococcus of, 497
 —, excision of the initial sclerosis and treatment of, 233
 —, inoculation of, with razors, 363
 — in tubercular and gouty constitutions, 618
 — renal, 748
 —, treated with hypodermic mercurial injections, 413
 Syphilitic fungus, 550
- Tabes dorsalis and syphilis, 223
 Tait, hepatotomy for hydatids, 550
 —, hyperpyrexia after Listerian Ovariectomy, 114
 Talamon, organism in diphtheritic membranes, 282
 —, pathology of diphtheria, 342
 Tallow for carbolic acid ointments, 125

- Tannin, action of, 398
 Tappeiner, production of phthisis by inhalation, 93
 Taylor, nature of infecting agent in whooping cough, 478
 Temperature, effect of exertion on, Bonnal, 83
 Tetanus, Calabar bean in, 475
 ———, electrical, 724
 Thalictrin, physiological properties of, 277
 Thornton, antiseptic ovariectomy, 686
 ———, hyperpyrexia after Listerian ovariectomy, 114
 Thyroid gland, electrolysis of blood cysts of, 546
 ———, extirpation of, 423
 Thyrotomy in a child aged eighteen months, Navratil, 99
 Tibia, antiseptic osteotomy of, fatal carbolic intoxication, 492
 Tight rings, 106
 Tongue, desquamative syphilis of, 415
 ———, excision of, 417
 ———, removal of, through mouth with scissors, 544
 ———, treatment of cancer of, 231
 Tracheotomy, cases of, 172
 ———, ultimate effects of, 509
 Trephining for anomalous convulsive attacks, 522
 Trichiasis, operation for, 558
 Trichine cysts, formation of, 542
 Trichiniasis, 131
 Trichinosis, 515
 Tripier, cephalic soufflé in the adult, 668
 Tripolith, a substitute for plaster of Paris, 84
 Troizki, bicarbonate of soda in burns, 679
 Tube-casts, hyaline, formation of, 488
 Tubercular meningitis, the temperature in, Turin, 153
 Tubercularization, influence of hydro-pneumothorax on, 671
 Tuberculosis and scrofula, 399
 Turpentine, oxidized oil of, 533
 Tympanic cavity, influence of nerves on secretion of, 723
 Typhoid fever, atypical, 387
 ———, epidemic of, 697
 ———, presence of bacilli in, 665
 ———, simulation of, by acute tuberculosis, 481
 ———, treatment of, 323, 401
 ——— by salicylate
 of soda, 666
 ——— with low temperature, 537
 Umbilical cord, ligation of, 681
 University of Maryland, 318
 ——— Pennsylvania, 126, 249, 318, 446
 Urea, estimation of, 488
 ———, physiology and pathology of excretion of, 471
 Urinary analysis, 678
 Urine, estimation of chlorides in, 488
 ———, presence of albumen and sugar in, 676
 Uterine appendages, removal of, for uterine hemorrhages, 434
 ——— displacement, curability of, 628
 ——— orifices, narrowness of, in relation to dysmenorrhœa and sterility, 184
 Uterus, abnormality of, Hicks, 57
 ——— and ovaries, extirpation of, 306
 ———, cancer of, in the seventeenth year of life, 186
 ———, chronic, complete inversion of, 243
 ———, extirpation of, for cancer, 683
 ———, intra-mural fibroid of, 392
 ———, mechanical dilatation of, Fritsch, 110
 ———, treatment of ruptures of, Frommel, 112
 ———, tupelo tent for dilating, 369
 Vaccination, introduction of, in America, 192
 ——— not a failure as a prophylactic, 435
 Vagina, absence of, operation for retention of menses, 109
 Vaginitis exfoliativa, 242
 Vaillara, tuberculous pericarditis, 483
 Valdivine, 616
 Variocella and vaccination, gangrenous eruptions with, 744
 Varicocele, radical cure of, 177
 Veins, resection of, 494
 Vermiform appendix, rupture of, 190
 Verneuil, epithelioma of the tongue, 170
 ———, stenosis of liver, 411
 ———, syphilis in tubercular and gouty constitutions, 618
 ———, treatment of cancer of the tongue, 231
 ——— malignant pustule, 238
 Vesical irritation from blisters, 85
 Vesico-vaginal fistula, 305
 Vienna Medical Faculty, 250
 Vincent, perforating wounds of the bladder, 626
 Virchow, neurotic atrophy, 26
 Virginia, Medical College of, 62
 Vision, examination of, in railway employes, 169
 Volkmann, progress of surgery, 605
 Vomit, green, nature of, 226
 Vomiting, prolonged, 225
 Vulva, gangrene of, in typhoid, 402
 Vulvitis, aphthous, and gangrene of the vulva in children, 431
 Wagner, treatment of empyema, 737
 Waldwin, 532
 War, medical and surgical history of, 191
 Washington, new hospital, 253
 ———, Providence hospital, 253
 Water, hypodermic injection of, for pain, 729
 Wells, hyperpyrexia after Listerian ovariectomy, 117
 Westphal, disappearance and localization of the knee reflex, 347

- Whipham and Pick, extirpation of the larynx for malignant disease, 420
 Whitaker, amyloid kidney, 259
 ———, law of slander as applicable to physicians, 118
 Whooping-cough, bromide of ammonium in, 473
 ———, tannate of quinia in, 476
 Wiener, source of the liquor amnii, 335
 Williams, treatment of phthisis at high altitudes, 538
 Wilson, atypical typhoid fever, 387
 Wiltshire, pruritus vulvæ, 265
 Woillez, cold baths in cerebral rheumatism, 23
 Wounds, healing of, 622
 Xanthoxylum Naranjillo, 533
 Yale Medical College, bequest to, 126
 Zeissl, spasmodic stricture, 40
 Zenker, pathogeny of pericarditis, 33
 Ziegler, causes of contracted kidney, and the diagnosis of different forms of nephritis, 227

